Calif... MEDICINE

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OF THE CALIFORNIA MEDICAL ASSOCIATION

OLUME 81 NUMBER 3

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Reference: 1. J.A.M.A. 153:1519 (Dec. 26) 1953.

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1. McHardy and Browne: Sou. Med. J. 45:1139, 1952. 2. Lorber and Shay: Fed. Proc. 12:90, 1952.

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Three Houston physicians said recently that with the drug alseroxylon high blood pressure not only may be controlled when it starts, but the serious later complications may be prevented. Combined-drug treatment offers hope for reversing the once-inevitable advance of associated circulatory disorders in some instances, they said.

Drs. William R. Livesay, John H. Moyer and Samuel I. Miller used alseroxylon, an extract from the snakeroot drug Rauwolfia serpentina, in treating 43 hypertensive patients at the cardiac clinic of Jefferson Davis hospital.

"This drug is undoubtedly as unique a pharmacological agent as has been offered for application in clinical medicine in many years," they said in a recent issue of the *Journal of the American Medical Association.*

"Especially is this appreciated when it is contrasted with the list of hypotensive agents that have been used in recent years but that have resulted in such undesirable side-effects that their practical use has been greatly limited."

They said their study shows the drug has even greater value than previously reported. Earlier tests with the extract had been limited to patients with only mild hypertension and no complications, but the Houston physicians found that in combination with other drugs alseroxylon can produce improvement in more serious cases.

Before Rauwolfia serpentina extracts became available, drug treatment for such cases was difficult because of undesirable side-effects, they said.

"Alseroxylon has the distinct advantage among hypotensive agents in being associated with no serious untoward side-effects," they said. "In fact, it oftener produces certain desirable effects such as mild sedation without somnolence, and a general sense of well-being."

In patients with severe hypertension, alseroxylon may be used "to prepare them for the addition of more potent hypotensive agents by bringing about better stabilization of the disease," they said.

The drug offers additional benefits to those persons who are emotionally unstable, they said, and is "superior to drugs such as phenobarbital in its ability to allay anxiety and improve the general sense of well-being" without causing sleepiness.

"The side-effects that primarily influence the patient's psyche help to create a better opportunity to make a satisfactory adjustment to life situations," they said.

Forty-three patients who previously had not had

(Continued on Page 16)

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1. Friend, D.G., and Cummins, J.F.: J.A.M.A. *153*:480 (Oct. 3) 1953.

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*Riese, J. A.: Am. J. Digest. Dis. *21*:81, 1954.

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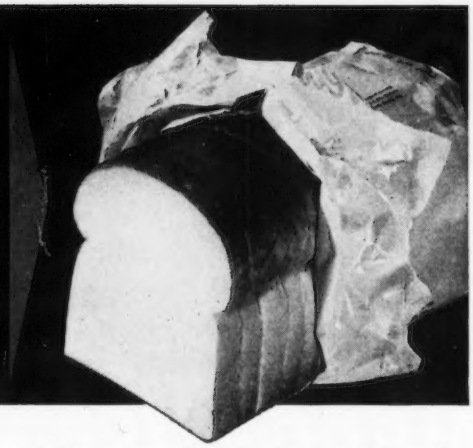

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---

1. The Committee on Dietetics of the Mayo Clinic: Mayo Clinic Diet Manual, ed. 2, Philadelphia, W. B. Saunders Company, 1954.
2. Sherman, H.C.: Chemistry of Food and Nutrition, ed. 8, New York, The Macmillan Co., 1952, pp. 212, 599.
3. Sherman, H.C.: The Nutritional Improvement of Life, New York, Columbia University Press, 1950, p. 133.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

AMERICAN BAKERS ASSOCIATION

20 NORTH WACKER DRIVE • CHICAGO 6, ILLINOIS

MODERN MANAGEMENT

IN ANOGENITAL PRURITUS AND OTHER ITCHING DERMATOSES

FAST DEPENDABLE RELIEF

HP*ACTHAR Gel, subcutaneously or intramuscularly brings fast, dependable relief in anogenital pruritus and other itching dermatoses. HP*ACTHAR Gel does not provoke sensitivity reactions, as do so many "sedative drugs" or "antipruritic ointments".

Three patients with intractable anogenital pruritus who were completely relieved by ACTH therapy have been reported in a recent article.† In other instances, HP*ACTHAR Gel provides needed relief until specific, time-consuming measures can exert control.

†Fromer, J. L., and Cormia, F. E.: J. Invest. Dermat. 18: 1, 1952.

HP* ACTHAR *Gel*

*HIGHLY PURIFIED (IN GELATIN)

*ACTHAR® IS THE ARMOUR LABORATORIES' BRAND OF ADRENOCORTICOTROPIC HORMONE—CORTICOTROPIN (ACTH)

The small total dose required affords economy and virtual freedom from side actions.

THE ARMOUR LABORATORIES
CHICAGO 11, ILLINOIS
A DIVISION OF ARMOUR AND COMPANY

Snakeroot Remedy May Lower Blood Pressure

(Continued from Page 10)

hypotensive drug treatment were given alseroxylon alone. Of these, 20 responded with lower pressure and 10 returned to normal pressure levels. Of the 21 treated with alseroxylon and later with the added drug hydralazine, 12 responded and one became normal.

Of six patients given alseroxylon and hydralazine from the beginning, three were responsive and one became normal. Of the 39 given alseroxylon plus the drug hexamethonium, 36 were responsive and 18 returned to normal pressure. A large percentage of this last group had severe hypertension with complications.

The drug reduced blood pressure, increased appetite, reduced pulse rate, and produced "a sense of well-being or tranquillity."

Hexamethonium and hydralazine have been used in combination before in hypertensive patients but produced unpleasant side-effects, the physicians said. These effects were reduced when either of the two drugs was used with alseroxylon.

The physicians said the drug gave "a just reason for further optimism over the future management of hypertension."

Foreign Operations Administration is preparing to spend $480,500 to finance postgraduate study in the United States for 100 European physicians. Specialists will study for from six weeks to three months, while younger men will stay for a maximum of three years. Those to be invited will include all types of medical specialists, and much of the study will be designed to acquaint the foreign physicians with American hospital techniques. Selection will be made by local committees in the various foreign countries. The entire operation will be directed by the American College of Surgeons, under contract to FOA.

—A.M.A. Washington Letter

Superior Spasmolysis

Minimal Side Effects

DONNATAL®

Robins

NATURAL BELLADONNA ALKALOIDS – Each tablet, capsule, or 5 cc. teaspoonful of elixir contains: hyoscyamine sulfate 0.1037 mg., atropine sulfate 0.0194 mg., hyoscine hydrobromide 0.0065 mg., phenobarbital (1/4 gr.) 16.2 mg. Also available as Donnatal Plus (Donnatal with B Complex vitamins) tablets or elixir.

A. H. Robins Co., Inc., Richmond 20, Va.

RELAXATION THERAPY...

for 'anxiety-tension' *alcoholism* *muscular spasm*

MEPHATE®

Robins

capsules

The *improved* mephenesin preparation providing effective relaxation, in smaller doses... allays anxiety without dimming consciousness... relaxes muscle spasm and tremor without impairing strength.

Each capsule contains mephenesin 0.25 Gm., and glutamic acid hydrochloride 0.30 Gm.

A. H. ROBINS CO., INC., RICHMOND 20, VA.

Long-Acting Penicillin Useful For Infections

Tests on patients with infections from burns, compound fractures and surgery show one shot of a new long-acting penicillin can replace multiple injections of penicillin.

Dr. John R. Hankins and George H. Yeager, University Hospital department of surgery, Baltimore, said recently the one-shot treatment controlled infection in all 46 patients tested, most of whom would ordinarily have required several doses of other penicillin types.

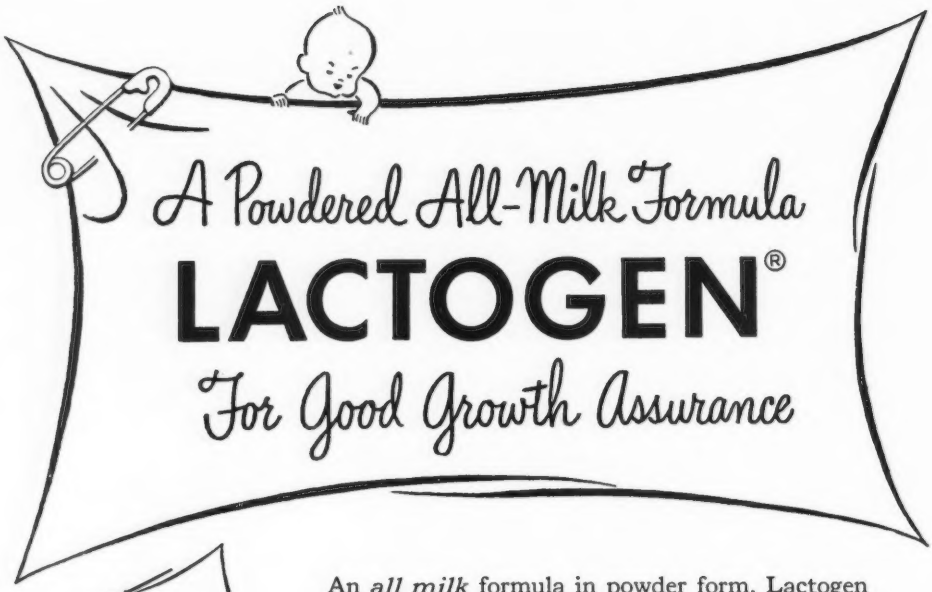
Benzathine penicillin G has already been found useful for treating infections accompanying rheumatic fever, for children with streptococcic infections, and for gonorrhea, the physicians said in a recent issue of the *Journal of the American Medical Association*.

Care Urged During Boating Season

Small boat accidents take about 1,200 lives each year, more than most communicable diseases, Dr. Carl J. Potthoff of Washington, D. C., reported in a recent issue of *Today's Health* magazine, published by the American Medical Association.

At this season parents should encourage children to take skills and safety courses offered free by the Red Cross, he said. Most boat accidents result from reckless behavior, ignoring storm threats, overloading leaky boats, and using defective motors. About 90 per cent of accident victims are men or boys, and the "supposedly careful" 25 to 44 year old group accounts for as many deaths as the 15 to 24 group.

Dr. Potthoff urged using only boats that will float if capsized; taking life preservers, and not trying to swim ashore if there is any other means of rescue or any floating object to hold on to.



A Powdered All-Milk Formula

LACTOGEN®

For Good Growth Assurance

1/3 more protein

Iron, too

An *all milk* formula in powder form, Lactogen supplies adequate amounts of the basic nutrients in desirable proportions. It consists of whole milk modified by the addition of fat and milk sugar, and fortified with iron. It contains no milk substitutes.

A Lactogen formula provides a readily digested mixture with a protein content of 2 per cent. This liberal allowance—one-third higher than that of human milk—offers good growth assurance. Lactogen's added iron serves well in preventing the "physiologic anemia" of infants.

Nothing but warm, previously boiled water is needed to prepare a Lactogen formula. Either a single feeding or the entire day's requirement may be prepared at one time.

Normal Dilution: One level tablespoonful of Lactogen to each 2 fluid ounces of water yields a formula containing 20 calories per fluid ounce.

THE NESTLÉ COMPANY, INC.

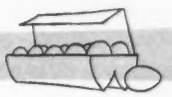
Professional Products Division

WHITE PLAINS, NEW YORK

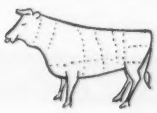
✳ MORE THAN 400 EGGS

. . . would be required to equal the 25 mg. thiamine content of a single capsule of "BEMINAL" FORTE with VITAMIN C, which also contains therapeutic amounts of other essential B factors and ascorbic acid as follows:

✳ Thiamine mononitrate (B_1) ..... 25.0 mg.
equivalent to more than 400 eggs



Riboflavin (B_2) ..... 12.5 mg.
equivalent to at least 8 slices of liver



Nicotinamide .....100.0 mg.
equivalent to more than 10 loaves of bread

Pyridoxine HCl (B_6) ..... 1.0 mg.
equivalent to about 14 servings of spinach

Calc. pantothenate ..... 10.0 mg.
equivalent to almost 4 quarts of milk

Vitamin C (ascorbic acid) .....100.0 mg.
equivalent to more than 15 apples

"BEMINAL"® FORTE with VITAMIN C

Ayerst

Recommended whenever high B and C levels are required and particularly pre- and postoperatively. Suggested dosage: 1 to 3 capsules daily, or more as required.

No. 817—supplied in bottles of 100 and 1,000

5427

AYERST LABORATORIES • NEW YORK, N. Y. • MONTREAL, CANADA

Rauwolfia serpentina

AS SOLE THERAPY

For every patient with mild, moderate, or labile hypertension

In addition to dropping the blood pressure moderately, Rauwolfia serpentina produces marked, often dramatic, subjective improvement. It relaxes the emotionally tense patient, gradually inducing a welcome state of calm tranquility.

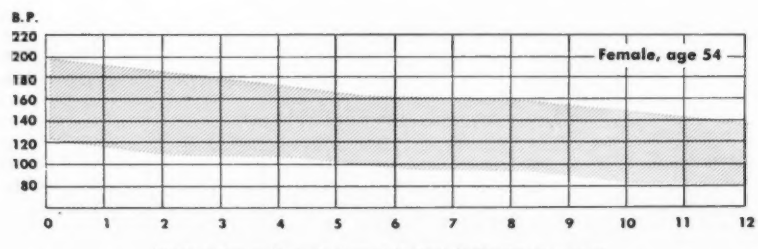
Headache, tinnitus and dizziness are greatly relieved, and the discomfort of palpitation is usually overcome. Hence, it usually suffices as sole medication in mild, moderate and labile hypertension, especially when the emotional element is a prominent factor.

Rautensin

Purified Rauwolfia Serpentina Alkaloids

Rautensin produces the typical hypotensive, sedative, and bradycrotic effects characteristic of this important new drug. Each tablet contains 2 mg. of the alseroxylon fraction, a highly purified alkaloidal extract entirely free of inert material. The alseroxylon fraction is tested in dogs for its ability to lower blood pressure, produce sedation, slow the pulse.

The initial dose of Rautensin is 2 tablets (4 mg.) daily for 30 to 60 days. After the full therapeutic effect has been established, the daily intake is dropped to 1 tablet (2 mg.) daily. Side actions are rare and there are no known contraindications.



Weeks of therapy. Rautensin, 4 mg. daily. Marked subjective improvement.

SMITH-DORSEY · **Lincoln, Nebraska** *A Division of* **THE WANDER COMPANY**

Rauwolfia serpentina
IN COMBINATION

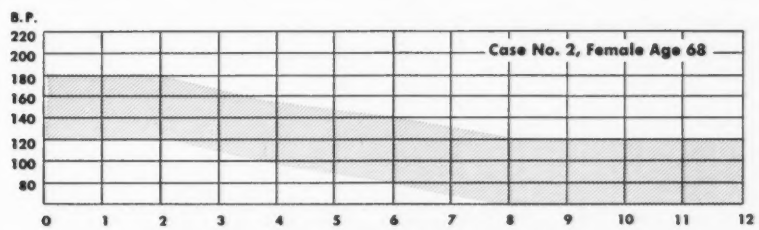
For the patient with chronic, severe, or fixed hypertension

Most cardiologists today assert that in severe or fixed essential hypertension, combination therapy is more efficacious than any single drug alone. The combination of Rauwolfia serpentina and Veratrum viride is especially favored since it results in an additive, if not a synergistic, effect. In this combination, the dosage requirements of veratrum are significantly reduced, hence the incidence of side effects is greatly minimized.

Rauvera
Rauwolfia Serpentina and Veratrum Viride Alkaloids

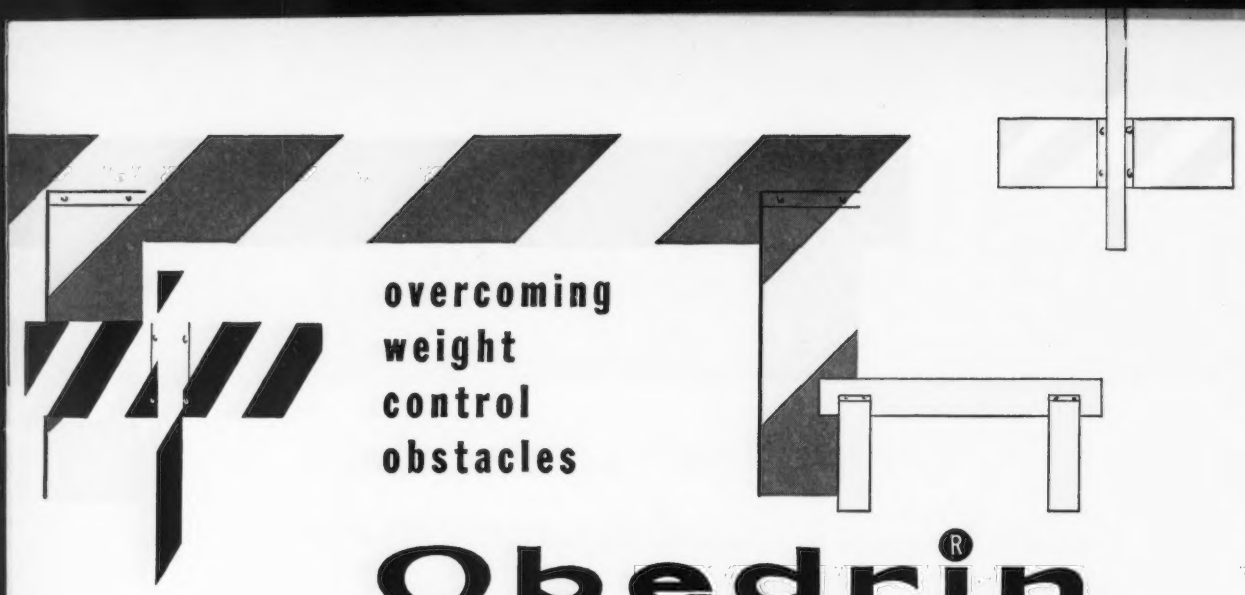
Each Rauvera tablet combines 1 mg. of the alseroxylon fraction of Rauwolfia serpentina and 3 mg. of alkavervir, a highly purified alkaloidal extract of Veratrum viride. The potent hypotensive action of veratrum is thus superimposed on the desirable influence of Rauwolfia. Rauvera leads to a substantial reduction in blood pressure and marked subjective improvement, hence produces excellent results in chronic, severe, and fixed essential hypertension.

The average dose of Rauvera is 1 tablet 3 times daily, after meals, at intervals of no less than 4 hours.



Weeks of therapy. Rauvera, 4 tablets daily. Note blood pressure response.

SMITH-DORSEY • Lincoln, Nebraska *A Division of* THE WANDER COMPANY



overcoming weight control obstacles

Obedrin®

and the 60-10-70 basic diet

Patients can lose weight and maintain a restricted diet, in comfort, without undesirable side effects . . .

EXCESSIVE DESIRE FOR FOOD

Obedrin offers the full anorexigenic value of Methamphetamine to curb the desire for food, while counteracting mood depression. Patient co-operation is made easier.

NERVOUS TENSION

To avoid excitation and insomnia, Pentobarbital is the ideal daytime sedative. It counteracts over-stimulation by Methamphetamine, but does not diminish the anorexigenic action.

VITAMIN DEFICIENCIES

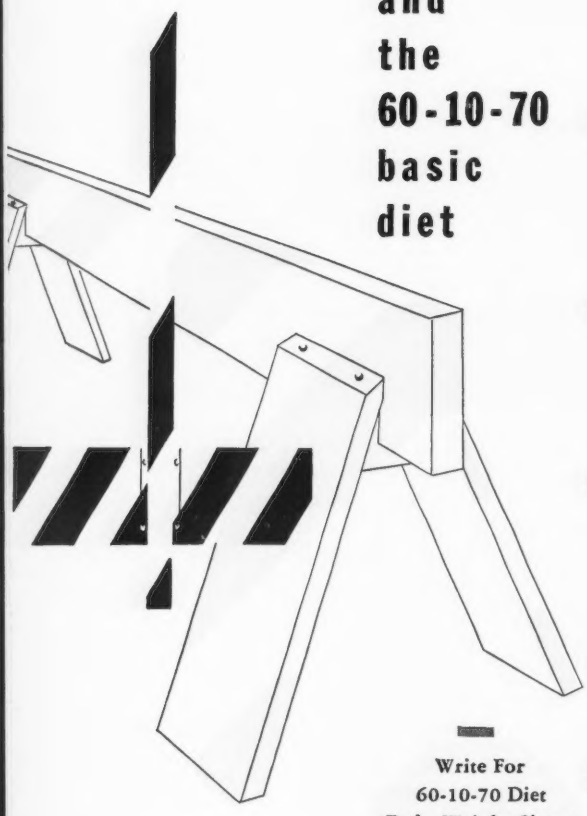
Obedrin tablets contain adequate amounts of vitamins B_1 and B_2 to supplement the 60-10-70 Basic Diet, but not enough to stimulate the appetite.

EXCESSIVE TISSUE FLUIDS

Large doses of Ascorbic Acid aid in the mobilization of fluids, so often an obstacle in obesity.

BULK NOT NECESSARY

The 60-10-70 Basic Diet provides enough roughage, so artificial bulk is unnecessary. The hazards of impaction caused by "bulk" producers is obviated.



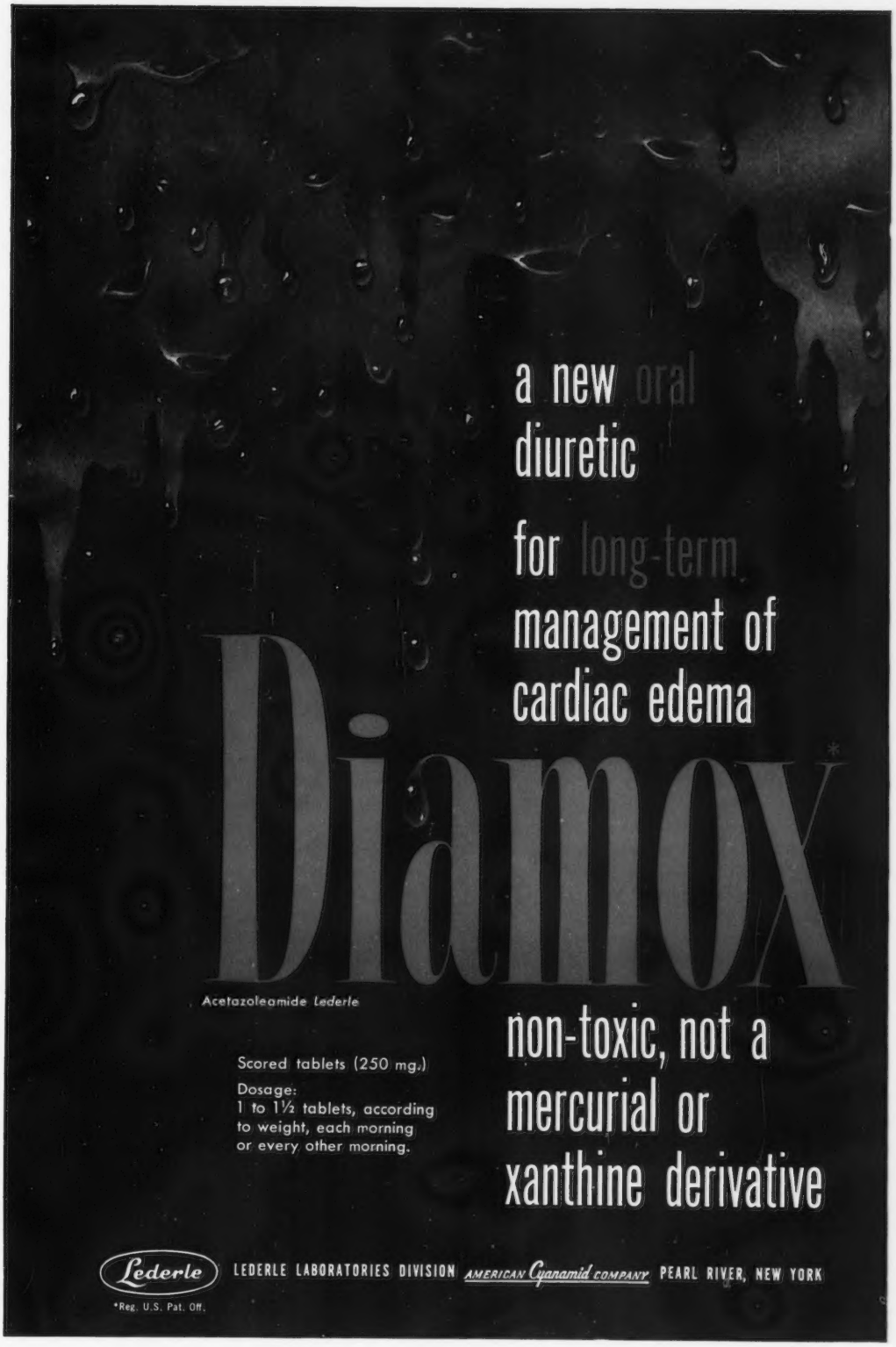
Write For 60-10-70 Diet Pads, Weight Charts And Professional Sample Of Obedrin

Each tablet contains:

Semoxydrine HCl..... (Methamphetamine HCl)	5 mg.
Pentobarbital.....	20 mg.
Ascorbic Acid.....	100 mg.
Thiamine HCl.....	0.5 mg.
Riboflavin.....	1 mg.
Niacin.....	5 mg.

S. E. MASSENGILL CO.

Bristol, Tennessee


a new oral diuretic
for long-term management of cardiac edema
Diamox*
Acetazoleamide Lederle
Scored tablets (250 mg.)
Dosage:
1 to 1½ tablets, according to weight, each morning or every other morning.
non-toxic, not a mercurial or xanthine derivative
Lederle
LEDERLE LABORATORIES DIVISION AMERICAN Cyanamid COMPANY PEARL RIVER, NEW YORK
*Reg. U.S. Pat. Off.

"The Real American Medical Association"

A guest editorial, written by Dr. V. T. Williams and appearing in the May-June issue of the *Kansas City Medical Journal*, gives a graphic portrayal of what makes the American Medical Association tick as an organization. The editorial is so well done that we took the liberty to reproduce it and enclose it in the Secretary's Letter.

"Many colleagues display a perverse delight in castigating the A.M.A. In this pleasurable pursuit, they are joined by nonmedical (but professional) critics who oppose every action of the A.M.A., or gleefully deplore any A.M.A. hesitancy to take precipitate, hasty, and ill-considered steps. On occasion, we have taken pot-shots at our parent organization when it seemed proper, but to shoot without a thorough understanding or without realizing why no action was taken, obviously is the act of a child-brain.

"Let's look over the physical plant which is ours; let's examine the many A.M.A. activities and functions; let's analyze who runs the thing; what makes it tick?

"Located at 535 North Dearborn Street in Chicago is a nine-story granite building, the heart and nerve center of the American medical profession. Almost one thousand workers keep the wheels turning. The grist of this mill is fed the American public, this represents about 140,000 physicians.

"The activities in this A.M.A. building range from the three-floors-and-basement full-scale publishing plant to lawyers carefully studying proposed legislation; from white-coated technicians analyzing pills and potions to the production of television and radio programs.

"Some people think the A.M.A. devotes most of its energy to fighting 'progressive action and socialized medicine.' And, yet, about 60 per cent of all revenues (circa $9,000,000) are spent on scientific activities. Everyone knows the A.M.A. Journal—it is one of the best. This alone costs $4,000,000 a year. Everyone knows also the A.M.A. monthly journals in the various specialties, plus scores of books and thousands of brochures, pamphlets, and reports. The thirteen presses run on a two-shift basis.

" 'Council Accepted' is a part of the average physician's vernacular. Behind these two words are several 'Councils.' They study drugs, food, cosmetics, and a jillion other matters—in fact, anything and everything pertaining to health or medicine. Other departments consider medical education, medical licensing, and hospital-service standardization. Still other departments handle quack and nostrum complaints. Too few physicians use the magnificent library service which is theirs for the asking. Twice a year, the A.M.A. presents great scientific exhibits.

"Most physicians aver our A.M.A. spends an overwhelming bulk of its income on 'fighting socialized medicine.' Last year the A.M.A. spent $385,000 on 'public relations'; this might be construed disparagingly as the none-too-subtle 'fight against socialized medicine.' Yet, most of this obviously was honest-to-goodness, legitimate 'public relations,' and not in a 'fight agin' anything. It takes the same amount just to maintain card index files on each M.D.—one of the nine floors is so allocated.

"As stated before, there is no phase of medicine or public health (in the broadest sense) which is not represented in this, our gigantic organization. Naturally, much time, effort and money must be spent to carry out these manifold functions; this is necessarily so, and will continue. Inevitably, some colleagues get disgusted when their own particular pet grievance is not handled posthaste; when their own private opinion is not immediately foisted and broadcast to the American people. Of course they get irritated and damn the A.M.A.!

"Who runs this 'medical octopus,' as it has been described? Well, most of these various councils and committees have full-time M.D.'s or laymen as secretaries, with top-flight physicians serving in an unselfish manner, to carry out their respective council and committee functions. We have a Board of Trustees (sometimes referred to as 'a bunch of senile fossils,' or, again as 'medical politicians'). We have a President, and the other usual officers, and we have a general manager and secretary, Doctor George Lull. The general characteristics of these gentlemen is well-known.

"First, they usually are in 'medical politics' for many years before they are elected Trustee (if we mean by 'medical politics' that they have faithfully served their county and state medical societies.) We think this is a badge of merit—not a stigma of opprobrium. Second, this does make a guy conservative, somewhat slow to act, probably deliberate in policy. Most physicians are inclined to be 'not the first nor yet the last' in their thinking. And, given fellows like this, let them practice until they're fifty or sixty, let them work in county and state medical organization jobs for twenty or thirty years, you will find men whose inherent conservatism has been potentiated by two or three decades of service in the harness—hence, the bitter, but unjustifiable, 'fossil' appellation.

"Unfortunately, at times these Trustees have been swayed by some clever, brilliant, dominating personality. That's bad! These Trustees include 'freshmen,' apt to be influenced by older and ostensibly wiser heads. Occasionally, a bunch of Trustees are more sluggish than they need be to accept newer ideas but, in general, our Trustees are a fair cross-section of a fine bunch of gentlemen doing their best. And they are, first of all, fellow-physicians. Let's remember that.

"Sometimes, when we hear colleagues gripe about the A.M.A., we wonder. Do they actually know what they're talking about; have they spent any time or effort trying to establish the facts or the background of the A.M.A. official policies or activities? Do they

(Continued on Page 36)

in hypertension...

Rauwiloid®

The ORIGINAL alseroxylon fraction of Rauwolfia

Serves Better

Because... Rauwiloid is freed from the inert dross of the whole root and its undesirable substances (for instance, yohimbine-type alkaloids) . . .

Because... Rauwiloid contains, besides reserpine, a number of active alkaloids, for example, rescinnamine (recently isolated by Riker research), reported to be more hypotensive but less sedative than reserpine.

Because... Rauwiloid is fractionated only from true, unadulterated Rauwolfia serpentina, Benth., constant in potency and action.

So Easy, too... **merely two 2 mg. tablets at bedtime!**

Riker LABORATORIES, INC., LOS ANGELES 48, CALIF.

The Milligram that's worth a Kilo.

BELLERGAL
TABLETS

prevent recurrent, throbbing headache – e.g. migraine

RESTORES AUTONOMIC STABILITY

Bellergal*, by inhibiting *all three divisions of the A.N.S.*, corrects the *autonomic-vasomotor-dysfunction*, so preventing recurrent, vascular headaches. According to Hilsinger, autonomic imbalance is a major contributing factor in the recurrent attacks of vascular-type headaches. He recommends Bellergal to "... dampen the effects of the undesirable nerve impulses to the autonomic nervous system."

INTERVAL TREATMENT OF MIGRAINE
SUMMARY OF RESULTS WITH BELLERGAL

AUTHOR	CASES TREATED	IMPROVED	PERCENT
HILSINGER, R. LARYNGOSCOPE 61:296, 1951.	25	20	80
WITTICH, F. ANN. ALLERGY 10:620, 1952.	35	32	92
VON WITZLEBEN, H. J. MISSOURI M.A. 49:486, 1952.	28	26	92
BANKOFF, K., AND KOHRMAN, B. CLIN. MED. 60:264, 1953.	26	24	95

AVERAGE DOSAGE RANGE:
3 to 6 tablets by mouth daily; after a few weeks adjust dosage to individual need.

*Each Bellergal® tablet contains: Ergotamine Tartrate (sympathetic inhibitor) 0.3 mg., Bellafoline (parasympathetic inhibitor) 0.1 mg., and phenobarbital (central and subcortical sedative) 20.0 mg.

BELLERGAL FUNCTIONAL DISORDERS

Sandoz PHARMACEUTICALS

DIVISION OF SANDOZ CHEMICAL WORKS, INC.
HANOVER, N. J. • CHICAGO 2 • SAN FRANCISCO 8

Current reports[1,2] describe the increasing incidence of resistance among many pathogenic strains of microorganisms to some of the antibiotics commonly in use. Because this phenomenon is often less marked following administration of CHLOROMYCETIN (chloramphenicol, Parke-Davis), this notably effective, broad spectrum antibiotic is frequently effective where other antibiotics fail.

Chloromycetin®

Coliform bacilli—100 strains

up to 43% resistant to other antibiotics;
2% resistant to CHLOROMYCETIN.[1]

Staphylococcus aureus—500 strains

up to 73% resistant to other antibiotics;
2.4% resistant to CHLOROMYCETIN.[2]

CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

References
(1) Kirby, W. M. M.; Waddington, W. S., & Doornink, G. M.: Antibiotics Annual, 1953-1954, New York, Medical Encyclopedia, Inc., 1953, p. 285.
(2) Finland, M., & Haight, T. H.: *Arch. Int. Med.* **91**:143, 1953.

Conference

on

PHYSICIANS and SCHOOLS

FRESNO HACIENDA

FRESNO, CALIFORNIA

November 12 and 13, 1954

Announcing -

Our first Conference on Physicians and Schools. Representatives of the State Department of Public Health, the State Department of Education, and the California Medical Association will officiate at the Conference. Sixty outstanding men and women in these professions have been invited to serve as consultants to the discussion groups.

PURPOSE OF THE CONFERENCE: To develop means by which the public health, educational, and medical professions can more closely coordinate efforts toward improving the health protection of California's school children.

RESERVATIONS at the Fresno Hacienda, or nearby motels/hotels, will be handled through the California Medical Association's Housing Bureau, 450 Sutter Street, San Francisco. Rooms at the Hacienda are available in limited numbers. Please make a first, second, and third choice. In order to assure the type of accommodation which you desire, please place your reservation early.

TRAVEL: Fresno is located approximately equidistant from Los Angeles and San Francisco. It is easily accessible by plane, train or by automobile.

DISCUSSION GROUPS:

1. Communicable Disease
2. Health Guidance and Physical Education
3. Environmental Aspects of School Health
4. Emotional Problems of Growing Children
5. Children with Special Health Problems
6. Family Physician and School Health
7. School Physician and School Health
8. Emergency Care

CALIFORNIA MEDICAL ASSOCIATION EUREKA 1856

CALIFORNIA MEDICAL ASSOCIATION

450 SUTTER STREET SAN FRANCISCO

announcing

GANTRISIN CREAM *Roche*

for vaginal use

Gantrisin Cream offers a three-fold advantage in the *prophylactic* and *therapeutic* management of *vaginitis, cervicitis, vulvitis and related gynecologic disorders:*

1. wide antibacterial spectrum, plus high solubility, plus low incidence of sensitization.

2. acid pH (4.6) providing unfavorable medium for vaginal pathogens.

3. aesthetic appeal—pleasant white vanishing cream.

Dosage and Administration: from one-half to one applicatorful (2.5-5 cc) introduced into the vagina twice daily (in the morning and upon retiring).

Supplied: 3-oz tubes, with or without applicator.

Caution: If patient develops sensitization, treatment should be discontinued.

GANTRISIN®—brand of sulfisoxazole (3,4-dimethyl-5-sulfanilamido-isoxazole)

HOFFMANN-LAROCHE INC • ROCHE PARK • NUTLEY 10 • N. J.

California MEDICINE

CLASSIFIED ADVERTISEMENTS

Rates for these insertions are $5 for fifty words or less; additional words 6 cents each

Copy for classified advertisements should be received not later than the tenth of the month preceding issue. • Classified advertisers using Box Numbers forbid the disclosure of their identity. Your inquiries in writing will be forwarded to Box Number advertisers.

PHYSICIANS WANTED

MANY EXCELLENT OPPORTUNITIES in all SPECIALTIES and GENERAL PRACTICE throughout the WEST. Salaries, percentage, partnerships, groups. For information please contact Norma Rohl, THE MEDICAL CENTER AGENCY, 26 O'Farrell Street, San Francisco, YUkon 2-3412.

ASSISTANT MEDICAL DIRECTOR; tuberculosis sanatorium, beautifully located in Sierra foothills just off the Yosemite National Park Highway and near Bass Lake with fishing, hunting and boating. Salary $6000, full maintenance, tuberculosis experience not required. Must have California license. Apply Medical Director, Ahwahnee Sanatorium, Ahwahnee, California.

PHYSICIANS-SURGEONS WANTED. Write us for forms if interested in locating in Pacific Northwest, Southwest, or through the Rocky Mountain area. No registration fee; strictly confidential. CONTINENTAL MEDICAL BUREAU (Helen Buchan), 510 West Sixth Street, Los Angeles 14, California.

PEDIATRICIAN, certified or qualified, excellent opportunity for full time man. Close working association with busy, established obstetrician and other specialists. Ideal area and working circumstances. Brentwood Village, West Los Angeles, Box 90,755, California Medicine.

CALIFORNIA OPPORTUNITIES—(a) ANESTHESIOLOGIST, head, department; large general hospital. (b) ASSISTANT, general practice, $800 increasing to $1,000 after six months. (c) DERMATOLOGIST; group association. (d) GENERAL PRACTITIONER to take charge medical department, small plant; opportunity private practice, should net $12,000. (e) EENT or ENT specialist; partnership. (f) INTERNIST, head department, small group; minimum $12,000. (g) NEUROPSYCHIATRIST, experienced electroencephalography, shock therapy; group. (h) OBSTETRICIAN-GYNECOLOGIST, associate, busy practice. (i) OPHTHALMOLOGIST, association, busy private practice, early partnership. (j) OPHTHALMOLOGIST and PEDIATRICIAN, head departments, eight-man group. (k) ORTHOPEDIST, head newly created department, long established group, university city. (l) PEDIATRICIAN, association, private practice, college town. (m) GENERAL SURGEON with special training in traumatic, orthopedic or cardiovascular surgery or oncology; minimum $12,000. (n) UROLOGIST, association several specialists; Northern California. Burneice Larson, Medical Bureau, Palmolive Building, Chicago, Illinois.

PEDIATRICIAN WANTED to associate with established Pediatrician in San Fernando Valley, Los Angeles area. Must be board qualified or eligible. Good salary to start and partnership if compatible. Eugene Gettelman, M.D., 14140 Ventura Blvd., Sherman Oaks, California.

OPPORTUNITIES WANTED BY THE FOLLOWING CALIFORNIA LICENSED SPECIALISTS: (a) DERMATOLOGIST, Diplomate, trained Skin Cancer Clinic, New York; 2 years private practice. (b) INTERNIST, M.D. George Washington University, training Gallinger Municipal Hospital, certified, wishes group association. (c) OBSTETRICIAN-GYNECOLOGIST, board eligible, M.D. Georgetown University, training Columbia Hospital for Women; 5 years private practice. (d) SURGEON, M.D., M.S. leading university; trained general and thoracic surgery, Mayo Clinic; year's preceptorship prominent surgeon. (e) UROLOGIST, eligible, M.D. Creighton, training teaching hospital; immediately available. For further information, write PACIFIC COAST MEDICAL BUREAU, Agy., 703 Market Street, SAN FRANCISCO, or 510 West Sixth Street, LOS ANGELES.

SITUATIONS WANTED

GENERAL PRACTITIONER. 30, family. Desires California location. Association with another General Practitioner, small group or private practice. Leaving service soon. Four years private civilian practice. Write: Captain J. H. Walston, 627 Fairchild Street, San Antonio, Texas.

INTERNIST-GASTROENTEROLOGIST. Mayo and University training, total over five years, includes gastroscopy and proctoscopy. Also interested in hematology and peripheral vascular diseases. Certified American Board of Internal Medicine. Now Instructor, Department of Medicine, College of Medicine. Family. Category IV. Desires association with group or clinic in California. Box 90,870, California Medicine.

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FOR LEASE: Attractive separate medical building. Approximately 2300 square feet. Good location in Berkeley. Private parking area. Emslie & Lorenz, 2146 Center Street, Berkeley, California. Telephone: THornwall 1-0743.

(Continued on Page 33)

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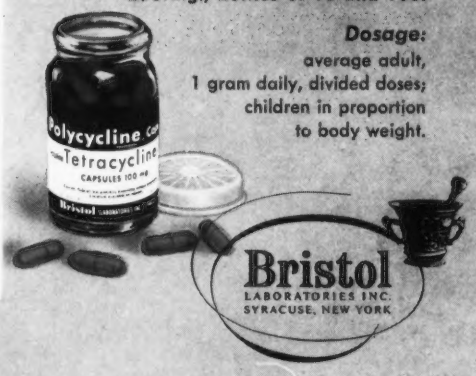

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(Continued from Page 32)

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SAN LEANDRO, suburb of Oakland. Immediate occupancy. Office, 5½ rooms, in Medical-Dental Building. Nice neighborhood. Plenty of parking space. $135.00 per month. Also for sale—Furniture and equipment for 5 rooms, complete, including EKG and Fluoroscope, like new, ready for someone for immediate practice. Price $3,500.00. Write 2333 - 83rd Avenue, Oakland, California. Telephone LOckhaven 2-5514.

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FOR RENT—Modern office, fully equipped, with x-ray and State approved laboratory facilities, in a growing agricultural desert community. Blythe Medical Clinic, 263 North Broadway, Blythe, California.

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"The Real American Medical Association"

(Continued from Page 24)

read the A.M.A. Journal; do they answer questionnaires; do they alert themselves on current events in 'medical politics,' before they speak? Or do they just lambaste or damn the A.M.A. without knowing whereof they speak, merely because the A.M.A. seems such an impersonal, nebulous something, and a convenient whipping-boy? In this connection we are reminded of the irate father who comes home to find the side of the barn (or, what's worse, the house) covered with mud-balls, and immediately starts raising hell about the neighbor's kids, only to find it was his own brats who were the miscreants.

"*The guys who run the A.M.A. are us!* When we sit on our dead derrieres (dern rears to you Missourians!), and let the 'medical politicians in Chicago' do this or not do the other; when we cuss them out, remember we are cussing our fellow-physicians who are making a personal sacrifice to do our organizational work.

"The proper way to handle these gripes is to vote on every local medical society election, to serve as an officer to the best of our abilities when elected, and *to raise hell with (or change) our elected representatives* when things aren't going to suit us—the noisy axle gets the most grease!

". . . V. T. Williams, M.D."

Kansas City Medical Journal, May-June, 1954

Polio Patients Must Get Chance to Work

Heroic efforts to save lives during summer polio epidemics are difficult to justify unless the paralyzed patient's independence and pride are restored after he goes home, a New York physician recently said.

Dr. John F. Marchand said the polio patient may lose muscle power but not mental power and personality. He does not "vegetate" unless neglected. He can find an "appropriate vocation and awakening interest" if helped promptly.

But he said practical requirements for restoring polio victims to "an acceptable way of life" are "easily overlooked after a summer epidemic passes and community interest dwindles."

There are now 1,000 or more young adults and children, "the residue of recent epidemics," in iron lungs in scattered emergency care areas, Dr. Marchand said in a recent *Journal of the American Medical Association*. "A comprehensive national recovery program for [polio] patients is now as urgently needed as the excellent one in effect for the benefit of the blind: a practical schedule directed toward a restoration of confidence and dignity modeled after the achievements of Helen Keller, who set the precedent of an active career although blind, deaf and speechless."

Persons handicapped in one way "perform admirably in others" if only given the chance, he said. Communities must plan not only for emergency life

saving during the polio season but for long-term personality saving later. Survivors of epidemics should be transferred promptly to large regional centers and new "sheltered workshops" where they can learn constructive work and make occasional visits home.

More important than the patient's need to go home immediately after recovery is his need for a chance "to discover himself not as a burden or family liability but as a modest social and economic asset," Dr. Marchand said. In addition, the patient who goes home too soon may be in danger of sudden death or delayed muscle breakdown. Convalescence, or a decline, continues for years and constructive treatment during this time is "a medical undertaking not at all less urgent than the original lifesaving effort."

"The pervasive undercurrent of defeatism prevalent in much present planning for hospital or home care bypasses real potentialities for recovery," he said. "Although the death rate has been cut in some areas, care of post-acute poliomyelitis has been relatively neglected. An underestimation of community care requirements or improvised planning for the acute and convalescent stage of poliomyelitis can be costly and ineffective."

Medical services with new equipment and "a new standard for special education" can raise the polio survivor from "total vegetative dependency to that of a student and finally to that of a young person who need not wait, fancifully, for a full return to physical normality before he can rediscover his dignity and initiative as a productive person," Dr. Marchand said.

"Athletic Heart" Theory Questioned

The term "athletic heart" should be scrapped because it is used with too many different meanings to describe a condition that "probably does not exist," an editorial in a recent issue of the *Journal of the American Medical Association* said.

It said the many reports on the effect of exercise on the heart led only to the conclusions that "infections are more important as a cause of cardiac disease than exercise, that exercise even when strenuous will not damage a normal heart, and that persons with a heavy body build have a lower life expectancy than those with a lighter build regardless of the type or extent of their participation in sports."

However, there can be "no doubt" that strenuous exercise may injure a heart that is already weakened, and young athletes should have close medical supervision, the editorial added.

Still More Clinical Research Proving the Value of

Roncovite

in anemia therapy —

The rapidly expanding volume of clinical research continues to prove the effectiveness and safety of Roncovite in the common forms of anemia.* These clinical studies of the effect of cobalt-iron have produced gratifying results in several types of anemia.

AREAS OF CLINICAL STUDY INCLUDE:

- iron deficiency anemia
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- anemia in pregnancy
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Cobalt in therapeutic dosage exerts a specific erythropoietic effect on the bone marrow. Roncovite provides the supplemental iron to meet the need of the resulting accelerated hemoglobin formation.

— and from 1954 clinical reports

"We agree with Waltner (1930) and Virdis (1952) that iron should be given together with cobalt to obtain the most satisfactory results."[1]

"Evidence suggests that iron and cobalt provide the most effective hematinic for pregnant women."[2]

"The babies were closely observed daily for ill effects of the medication while at the premature unit and when they returned for check-ups. None of them showed harmful effects despite the large doses."[3]

***Bibliography of 192 references available on request.**

1. Coles, B.L., and James, U.: The Effect of Cobalt and Iron Salts on the Anaemia of Prematurity, Arch. Disease in Childhood *29*:85 (1954).
2. Holly, R.G.: The Value of Iron Therapy in Pregnancy, Journal-Lancet *74*:211 (June) 1954.
3. Quilligan, J.J., Jr.: Effect of a Cobalt-Iron Mixture on the Anemia of Prematurity, Texas St. J. Med. *50*:294 (May) 1954.

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Vitamin D . . . . . 250 units

DOSAGE

One tablet after each meal and at bedtime; 0.6 cc. (10 drops) in water, milk, fruit or vegetable juice once daily for infants and children.

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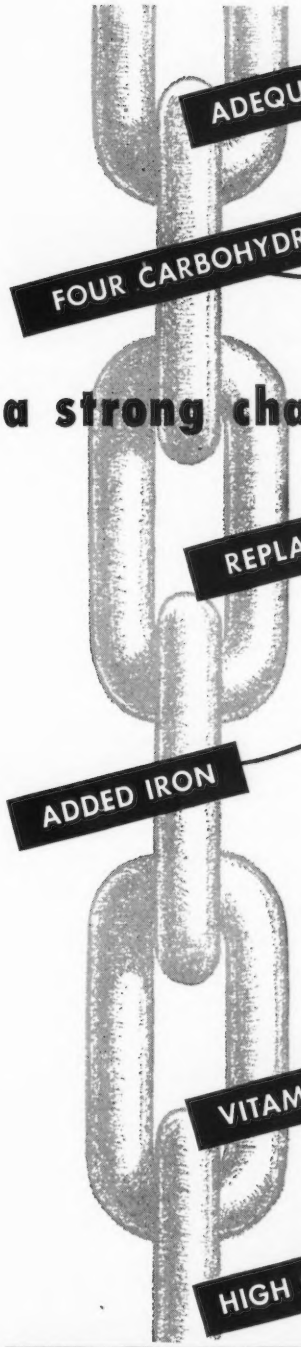

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Magazine Articles on the Family Doctor

"Is the Family Doctor Obsolete?" is the title of a well-written article in the July issue of *Cosmopolitan* magazine. Editors estimate that 1,200,000 persons will read this article, written by David Landman, which outlines the program of the American Academy of General Practice. Another equally favorable article on the family doctor by Dr. Francis T. Hodges appeared in the August 6 issue of *Collier's*. "It's a far cry," said the journal *GP*, "from the sensational piece on fee-splitting published in the same magazine last year."

—*The A.M.A. Secretary's Letter*

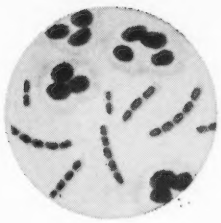
Heredity Theory of Epilepsy Questioned After Study

Epilepsy may be associated less with heredity than with complications before, during and just after birth, two Baltimore physicians have stated.

They reported in a recent issue of the *Journal of the American Medical Association* that a study of 396 epileptics and 393 nonepileptic children "raises doubts" as to the family-pattern theory of epilepsy.

"The results of this study appear to indicate that there exists a relationship between certain abnormal conditions associated with childbearing and the subsequent development of epilepsy in the off-

(Continued on Page 46)



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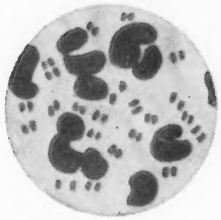

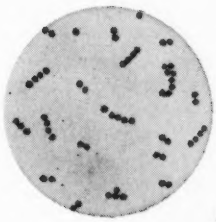

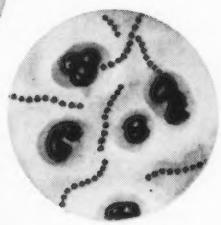

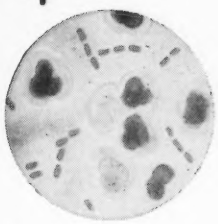

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1. Spink, W.W.: J.A.M.A. *152*:585 (June 13) 1953
2. Bush, W.L.: Southern M. J. *45*:870 (Sept.) 1952
3. Berkowitz, D.: Antibiot. & Chemo. *3*:618 (June) 1953

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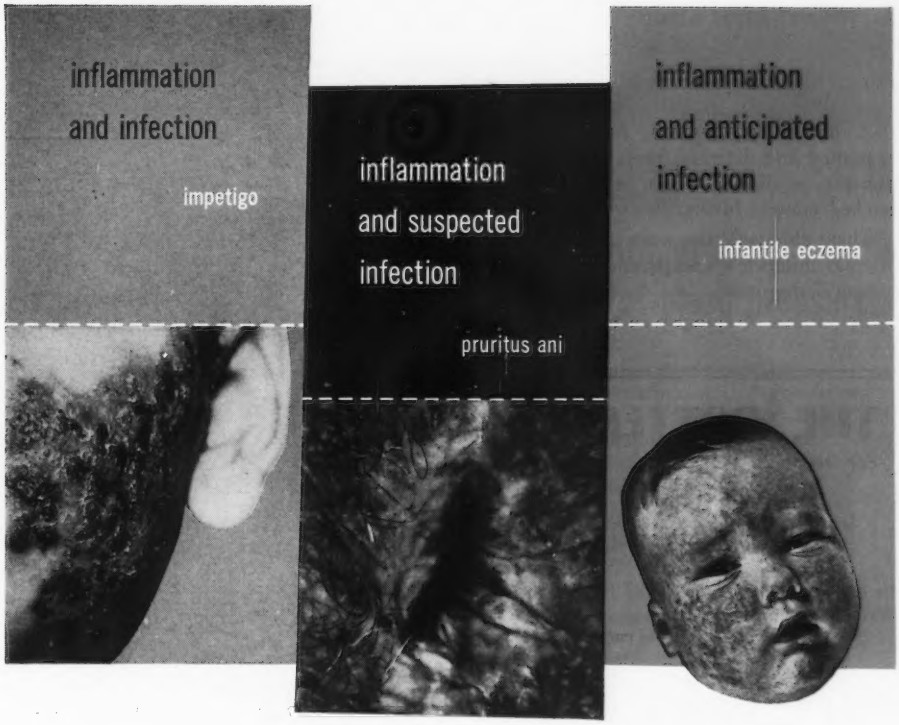

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Heredity Theory of Epilepsy Questioned After Study

(Continued from Page 42)

spring," they said. Records of more than 500 epileptic children born in Baltimore between 1935 and 1952 showed "significantly more complications of pregnancy and delivery, prematurity and abnormal neonatal conditions" than a similar number of matched control births.

"These abnormalities were just as frequent among epileptic children whose parents did or did not have epilepsy," they said.

The pattern of epilepsy in relation to mishaps in pregnancy or birth is similar to that already reported in cerebral palsy. This indicates that epilepsy should be added to the list of "reproductive casualties" that includes stillbirth, death of the newborn, and palsy.

The physician suggested one of the reasons for the theory of family transmission of epilepsy is that premature births tend to run in families and that a large number of the epileptic births are premature.

The study, aided by grants from the Foundation for Mentally Retarded and Handicapped Children and the Civitan Club of Baltimore, was made by Drs. Abraham M. Lilienfeld and Benjamin Pasamanick, of the Johns Hopkins School of Hygiene and Public Health.

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Raudixin alone and combined with other hypotensive agents

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SQUIBB

1. WILKINS, R. W., AND JUDSON, W. E.: NEW ENGLAND J. MED. 248:48, 1953.
2. FREIS, E. D.: M. CLIN. NORTH AMERICA 38:103, 1954.

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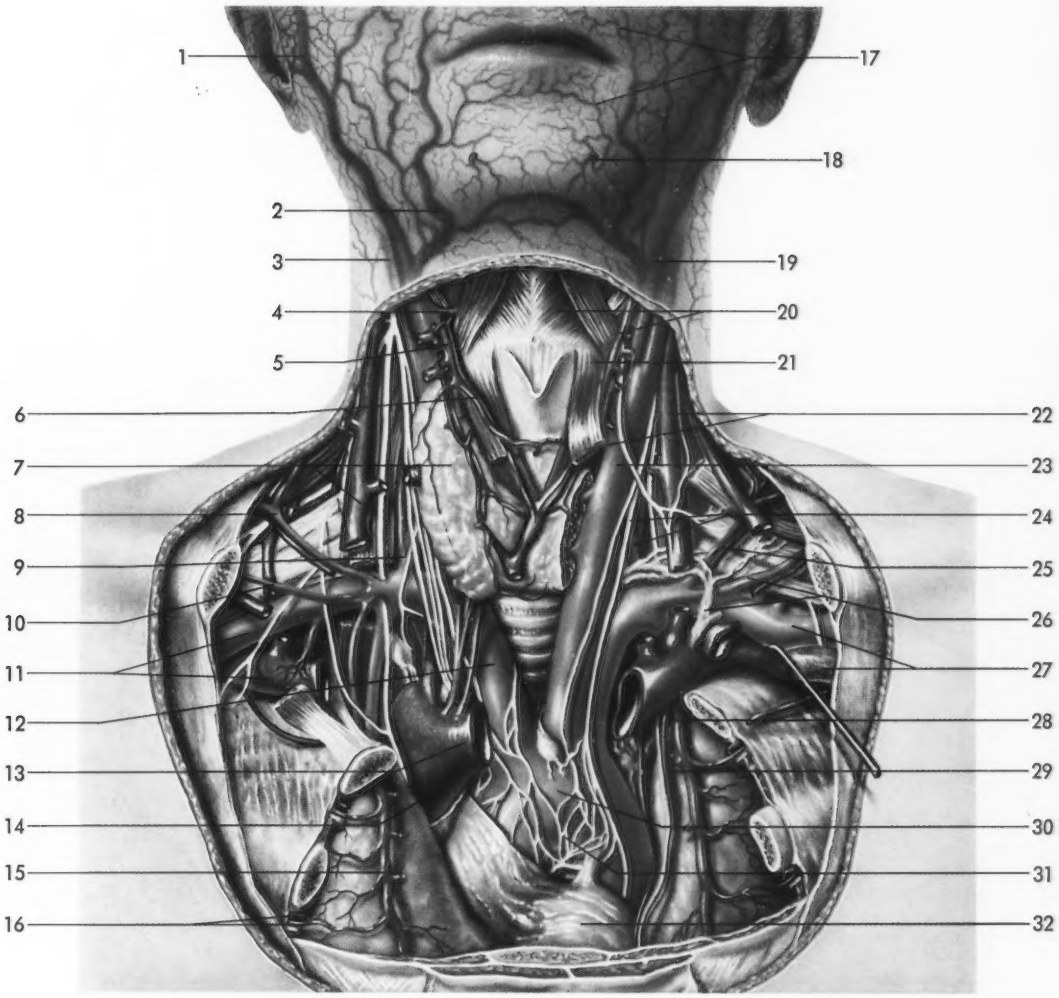

1 Superficial temporal artery
2 External maxillary artery
3 Internal carotid artery
4 Superior laryngeal artery
5 Right superior thyroid artery and vein
6 Cricothyroid branches of superior thyroid artery and vein
7 Internal jugular vein; thyroid gland
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10 Right suprascapular artery
11 Right subclavian artery and vein
12 Innominate artery
13 Left innominate vein
14 Superior vena cava
15 Right internal mammary artery
16 Anterior intercostal artery and vein
17 Superior and inferior labial arteries
18 Mental artery and mental foramen
19 External carotid artery
20 Mylohyoid muscle; left superior thyroid artery
21 Thyrohyoid muscle
22 Sternothyroid muscle; internal jugular vein
23 Left common carotid artery
24 Left inferior thyroid artery; vagus nerve
25 Left superficial cervical artery and vein
26 Left suprascapular artery; thoracic duct
27 Left subclavian artery and vein
28 Left internal mammary artery
29 Pericardiacophrenic artery
30 Aortic arch
31 Superficial cardiac plexus
32 Pericardium

This is one of a series of paintings by Paul Peck, illustrating the anatomy of various organs and tissues of the body which are frequently attacked by infection, where AUREOMYCIN *may prove useful.*

Lederle

New American Medical Association Consultant

Dr. Stanley Truman, Oakland, recently announced that the firm of Rollen Waterson Associates had been employed to assist and work with the A.M.A. Committee on Medical Practices. Dr. Truman is chairman of the six-member committee.

He also said that the Board of Trustees had appropriated funds for the committee to carry on its work. Mr. Waterson, who formerly was secretary of the Alameda-Contra Costa County Medical Society, will conduct a pilot study covering the controversial issues of unethical practices, including fee splitting (joint billing, methods of payment of an assistant, collection and distribution of fees by a third party, commissions and rebates) and the allied problems of excessive fees, ghost surgery, and unjustified medical and surgical procedures.

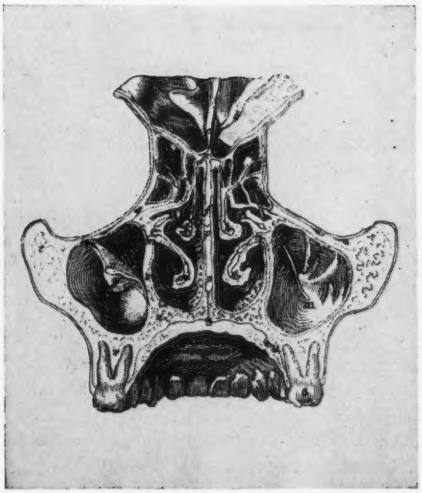
The study, Dr. Truman said, will be concerned primarily with the underlying reasons for these practices, both psychological and from the socio-economic standpoint.

—The A.M.A. Secretary's Letter

Poliomyelitis cases are now about 7 per cent behind the total for last year, with three states—California, Texas and Florida—continuing to report more than a third of the total.

". . . gives excellent results . . ."

In a recent report on intranasal therapy, Silbert[1] states:



". . . since mixed infections are common, preparations containing antibiotics effective against Gram-positive and Gram-negative organisms are suggested. 'Drilitol Spraypak', which combines gramicidin and polymyxin with a vasoconstrictor and an antihistamine, gives excellent results."

The author also states:
"Since these antibiotics are seldom used systemically, there is less danger to the patient of sensitization. It also precludes the possible development of resistant organisms through topical use of antibiotics that might later be needed in more critical infections."

1. Silbert, N.E.: GP 8(6):35 (Dec.) 1953.

for intranasal infections specify:

'Drilitol* Spraypak'

the convenient "pocket" spray

or

'Drilitol' Solution

with dosage-adjusted dropper

Formula: Contains gramicidin, 0.005%; polymyxin B sulfate, 500 U/cc.; thenylpyramine hydrochloride, 0.2%; Paredrine* Hydrobromide (hydroxyamphetamine hydrobromide, S.K.F.), 1%. Preserved with thimerosal, 1:100,000.

Smith, Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off. 'Spraypak' Trademark

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Refractory Heart Failure

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• *Any patient with so-called "refractory" heart failure should be looked upon as suboptimally handled. The patient should be studied for possible development of new disturbances, either inside or outside the vascular system, which, at the same time, have a bearing upon the heart failure.*

The entire therapeutic program should be reviewed to be sure that all aspects of therapy have been evaluated satisfactorily and established optimally. If diuretics, especially mercurial diuretics, have been given, the possible complications of such therapy, particularly in terms of electrolyte imbalance, should be considered. It is only through a general survey of the patient for an evaluation of these factors that they may be found and therapy instituted to minimize or eliminate them.

THE EARLY STAGES of congestive heart failure usually can be well controlled without difficulty. It is during the course of the disease that, sooner or later, there often comes a time when the therapeutic program, even when carried out in a seemingly satisfactory fashion, is no longer effective. The patient is then said to have "refractory heart failure." It is natural to assume at this point that the cardiac reserve has been so reduced that there is no longer sufficient active heart muscle to carry on the necessary activities of life even at rest, and that even with treatment a satisfactory level cannot be reached to maintain normal circulatory function. If a patient reaches this state, despite all the methods of treatment being applied optimally, he then truly has refractory heart failure. However, it frequently happens that the state of refractoriness is assumed even though the previously described circumstances above do not prevail. The so-called refractory heart failure may be the result of suboptimal handling of the patient. It is well, therefore, in all instances of "refractory heart failure" to consider possible factors in the patient which might be conducive to suboptimal therapy.[5]

The patient should receive "optimal" treatment. What is optimal for one patient may not be optimal for another. A physician, when confronted with a patient having seemingly refractory heart failure, should be prepared to review the primary cardiac diagnosis, to search for development of new noncardiac states, and to review his therapy to note its shortcomings in any sphere.

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Guest Speaker's Address: Presented before a combined meeting of the Section on General Medicine, California Medical Association, and the California Heart Association, at the 83rd Annual Session of the California Medical Association, Los Angeles, May 9-13, 1954.

REVIEW OF DIAGNOSIS

It is important to reevaluate the primary diagnosis, to be sure that it is satisfactory, and to know definitely that no new factor has been introduced.

Primary Diagnosis. It is possible that the diagnosis of congestive heart failure may have been in

error. Not only must noncardiac states, which cause edema, such as nephrosis or nephritis, be ruled out, but in addition it must be made certain that the congestive heart failure is produced by a cardiac state amenable to the usual treatment. Certain disturbances in cardiac function are amenable to treatment based upon the etiologic factors. This is true of myxedema, hyperthyroidism, beri-beri and various types of active myocarditis. Certain other cardiac states, such as constrictive pericarditis and chronic tuberculous pericarditis, must be treated by removal of the constricting influence, be it fibrous tissue or fluid. Where an anatomic stricture can be relieved by operation, as in mitral stenosis, or where abnormal channels for blood can be closed, as in patent ductus arteriosus, such states are best treated by the surgical procedure applicable to the particular case. Patients may show remarkable degrees of recovery following procedures to correct such defects when they have responded inadequately to treatment for congestive heart failure previously.

Progress in and New Developments in the Cardiac State. Refractoriness in therapy may result from new developments during the course of the treatment. For example, myocardial infarction may cause the reappearance of congestive heart failure which has been previously under control. At times in older patients the onset of myocardial infarction may not be manifested by significant pain, and acute heart failure developing from it may mask to some degree minor manifestations of chest pain. It is well, with onset of congestive heart failure in older persons particularly, if heart failure has been present before and brought under control, to suspect possible myocardial infarction and to take measures to establish its presence or absence.

The onset of arrhythmia, especially if it is very rapid, may throw a patient into congestive heart failure when he has been carrying on adequately previously. The onset of auricular flutter or fibrillation may, if the loss of cardiac reserve has reached a critical level, make it impossible to control the congestive state unless the arrhythmia is controlled or stopped. Such arrhythmia may develop insidiously without the patient's knowledge, particularly in older persons. Other conditions which throw added strain upon the myocardium, such as hypertensive states or exacerbations of such states, reactivation of rheumatic fever, or the effects of developing bacterial endocarditis, may similarly interfere with compensation and bring about heart failure that is difficult to control. Again, therapy must be directed at the newly developed factor.

Progress in and New Developments of Noncardiac States. Disease outside the heart may interfere with therapy. At times the development of anemia, for example, may disrupt an effective program. Hemoglobin values below 50 per cent would produce oxygen deficiency in tissues if adjustments were not made in the cardiovascular system. Increase in cardiac output is a compensatory mechanism but this throws an increased load upon the heart. If this strain is sufficient to produce decompensation in the damaged heart despite treatment, the patient will go into heart failure. Correction of the anemia may bring the patient out of congestive heart failure. Pulmonary infarction, a common accompaniment of congestive heart failure, is not infrequently a factor which makes the program for congestive heart failure ineffective. Pulmonary infarction is not always easy to recognize. Its less florid clinical pictures are frequently misdiagnosed, particularly when low grade fever and some tachycardia are the chief findings. Even when pulmonary findings are present they may be misinterpreted as pneumonia or as recurrent pneumonia. So called "masked" hyperthyroidism is also an unrecognized factor at times in refractory heart failure. In older patients, particularly those having auricular fibrillation, manifestations of hyperthyroidism are not always clearly evident or are not always a dramatic part of the symptomatology and clinical picture.

Because of digitalis effects, low salt diets, or other circumstances a patient with congestive heart failure may enter a stage of malnutrition or starvation. Refractoriness to treatment may develop upon this basis, especially if protein malnutrition is extensive. In these circumstances it is necessary to treat the patient nutritionally until he improves from that standpoint. The previously used aspects of the program may then be reinstituted.

It is clear that the development of so-called refractory congestive heart failure requires review not only of the patient's primary diagnosis, but also of the present status of the individual to determine whether or not an additional factor, which is important either in reducing cardiac reserve or in increasing strain upon the myocardium, has appeared.

THE REVIEW OF THERAPY

There may be inadequacies in and complications to therapy which lead to suboptimal handling of the patient. As already stated, early in congestive failure it is possible that even suboptimal use of procedures may cause complete disappearance of congestive heart failure simply because the disease is not far advanced. However, when the disease advances to a point beyond control by imperfect therapy, the optimal use of each and every procedure may be extremely important in effecting adequate control of the congestion. Suboptimal handling of the patient may result from inadequate use of procedures, from omission of procedures, or from complications to

therapy. Some of the most important of these are listed below.

Rest. In recent years there has been considerable change in the attitude on bed rest for patients with heart disease. The sitting position is obviously more comfortable from the standpoint of dyspnea and, in fact, use of a chair rather than a bed for rest is considered satisfactory. Ambulation as soon as possible is now standard for patients with congestive cardiac disease. This tends to prevent the complications of stasis. However, it is perfectly clear that excessive physical activity will lead to cardiac decompensation and that the evaluation of rest in therapy is important when the disease is refractory.

Status of Digitalization. The basic problem in the use of digitalis in congestive failure rests in careful tailoring of therapy to the individual patient. Rules of thumb commonly used in digitalization may lead to the false belief that specific doses of digitalis may be given to individuals on the basis of body weight, and the dose of the drug then dropped to a so-called maintenance level. Even with preparations such as Digitoxin, in which the absorption factor is least variable, the effect of the drug upon the individual and upon the individual's heart is variable. In all cases the dose of digitalis should be adjusted to the patient's own needs. An average amount may be given at the beginning to help saturate the patient only as a guide for further administration of digitalis to the proper level for that particular person. This must be done and the dosage adjusted upon the patient's reactions to the drug and upon the effects on the patient's circulation.

Many patients receive suboptimal doses of digitalis, their physicians believing they are administering optimal dosage. This is a very frequent cause of unsuccessful control and the lack of control may erroneously be interpreted as refractory heart failure. It can be corrected by proper adjustment of the dose.

Patients put to bed with congestive heart failure and given rest, digitalis and diuretics often respond satisfactorily. They may respond due to the rest and diuretics even though the digitalis is not given to the optimal level. However, when the patient again is permitted to be up and exercise to some degree, and the effects of rest are no longer totally operating in the maintenance of a normal circulation, the need for digitalis to the greatest point of effectiveness becomes important. This situation should be reviewed by the physician when the patient becomes "refractory."

Certain digitalis preparations, especially gitalin, appear to have a wider therapeutic range than others; and in refractory cases, when other digitalis preparations produce toxicity before therapeutic results are accomplished, gitalin may still be effective and produce improvement without toxicity.[1]

When a fibrillating heart does not slow under digitalis and the congestion generally does not respond, the presence of other factors should be suspected, including chronic infection, hyperthyroidism and active myocarditis.

Suboptimal use of digitalis may include overdosage as well as administration of too little.[1] Usually in case of excess use the signs of digitalis toxicity are present, and since they are well known such a state is usually recognized. However, there are some instances of advanced congestive heart failure, treated intensively with digitalis and without clear evidence of toxicity, in which the patient improves when the digitalis is reduced or stopped for a period of time. Intoxication from digitalis, by the production of frequent extrasystoles or tachycardia, may reduce the efficiency of the heart and precipitate congestive heart failure. When large doses of digitalis are used and the failure progresses, it is important that these aspects of the use of digitalis be reviewed and the symptoms and signs of digitalis overdosage sought out, for they are usually present as well.

The author's experiences in a large charity hospital indicate that patients with congestive heart failure are often sent in from rural areas in varying stages of digitalization. Because of the great variability in the type of preparation, the color of tablets, and the physical nature of the medication, the patient may not know that he has taken digitalis. The new observer, unaware of the fact that the patient has received some digitalis, may attempt rapid digitalization and in doing so throw the patient into digitalis intoxication. In these circumstances rapid regular heart action from digitalis block may be thought to result from the heart disease and more digitalis erroneously given.

Water. Cases in which the water content of the body is inadequate owing to therapeutic restriction of intake are not frequent now. There has been in the last several years a considerable upswing in the use of large amounts of water and control of salt intake. Water restriction may produce hypertonic dehydration. Urea and salt retention develop and changes in the kidneys may take place, as reflected by the presence of casts and red blood cells in the urine. This may lead to a state which in the past sometimes was interpreted as refractory heart failure. It is easily corrected by the administration of water.

Electrolyte Disturbances. In the past procedures to influence the electrolyte balance have not been as highly developed as they are at the present time. These measures are often very effective in the control of heart failure when those already mentioned above

are not adequate. Patients considered refractory in the past are now well handled with procedures directed at electrolyte control.[6] Some of these important changes will now be discussed.

Sodium Restriction. The control of the intake of the sodium ion, with amounts of salt reduced to one or two grams a day, is important in the management of many patients with heart failure. There is variability from patient to patient in the degree of salt restriction necessary, depending in part upon the nature and extent of disease. Some patients will lose edema on 1.0 gm. a day and gain on 2.0 gm. Some require restriction to 0.5 gm. There are differences of opinion on severe restriction of sodium and the use of mercurial diuretics in some patients. Some physicians prefer to use rigid sodium restriction to obviate the use of a diuretic. Others prefer more liberal sodium intake and a greater use of the mercurial diuretics. There are many patients for whom a choice may be elective, but for others who are more refractory to therapy both procedures are absolutely essential.

Salt restriction may result in three general difficulties. Occasionally in patients having so-called salt-losing nephritis, salt is lost excessively in the urine. If restriction is also carried out in the diet, pronounced dehydration may take place and the results of sodium lack, as described below, may occur. Secondly, a patient may take additional sodium despite dietary instructions. He may unconsciously get salt in his diet. This may happen if the instructions he has been given are not adequate and he takes sodium bicarbonate or some other sodium-containing substances which he does not consider in the category of salt. He may also take foods with much salt in them, not knowing their content; or, owing to the unpalatability of the diet low in salt, the patient may cheat. Both of these situations can be detected by determining the amount of salt in the 24-hour specimen of urine. Thirdly, the poor intake of food owing to unpalatable low sodium diets may cause anorexia and a continuing train of symptoms related to malnutrition resulting in additional refractoriness, as already mentioned.

Mercurial Diuretics. Diuretics are not always necessary in the treatment of congestive heart failure. However, their effectiveness in sweeping out water and salt has, because of their efficacy, made them one of the standard agents of treatment in refractory heart failure. Use of them may make the difference between success and failure in a program, especially if the diet is liberal in sodium.

Mercurial diuretics are quite effective as a rule. As with all drugs, there is variability in the response, owing to a number of factors.[4] These include poor absorption at the site of injection, dietary influences, age, poor renal excretion, and pathologic changes elsewhere in the body. The present discussion is not concerned with reactions to mercurial diuretics (such as sudden death from ventricular fibrillation, activation of epilepsy, and local reactions) but with the stage of refractoriness which may develop during their use. At times effectiveness of these drugs is enhanced after certain procedures. In some instances phlebotomy has acted in this way. Reports also indicate that the addition of vitamin C or pyridoxin to the material when injected may, when the special conditions to be described below do not exist, help potentiate the action of these drugs.

Without entering into the arguments concerning the action of mercurial drugs, it can be assumed that they are effective diuretics through suppression of tubular reabsorption of electrolytes. The chief of these are sodium and chloride. The concentration of sodium and chloride ion in body fluids determines, in part, the effectiveness of the action. Activity of the drug produces, depending on its relative effectiveness from person to person, a great or small loss of chloride. A variation in sodium output also occurs.

The simplest method[2] to determine the need for electrolyte studies, especially sodium, on the blood is the modified Fantus test. This test, employing silver nitrate and a dichromate solution, will give a rough index of the urinary content of sodium chloride and show need for serum electrolyte studies. Estimates of 3 gm. per liter suggest depletion of electrolyte while 4 gm. or more per liter make it unlikely that the patient is suffering from salt depletion. If low values are obtained further studies are indicated to establish sodium and chloride relationships in the blood. Depending upon their effectiveness, along with the variability in intake of these ions, a number of individual variations in the electrolyte pattern may appear as the result of the use of the mercurials. Four of these disturbances of importance are described below.

In the first place mercurials may not be effective if the heart failure itself has so reduced glomerular filtration that there is little or no electrolyte available for mercurial action in the tubules. In this circumstance there is insufficient glomerular filtrate presented to the tubules for any remarkable action by the mercurials. Here, aminophyllin given slowly by intravenous infusion, preferably an hour to an hour and a half after the mercurial diuretic is given, or even at the same time, may increase glomerular filtration sufficiently to produce enough filtrate for significant mercurial action in the tubules.

A second way in which the patient may be refractory to mercurials is frequently noted in the early stages of administration of these agents, especially in the first week of their use. At this time there may be sufficient sweeping out of chloride in the kidneys, especially if chloride intake is low, so that chloride

loss considerably exceeds sodium loss. The patient becomes hypochloremic and alkalotic. The resultant reduction in blood chloride may be great enough to make the patient refractory to the mercurial. This level is variable. Sometimes the range is in so-called low normal and is easily elevated by oral administration of ammonium chloride to make the patient again responsive to the drug. Frequently if the blood level of chloride is below 86 mEq. the patient is refractory. This state, termed hypochloremic alkalosis, may sometimes evoke some of the symptoms of the low salt syndrome described below. The patient may first lose weight rapidly. Anorexia may follow and weakness and confusion may appear. Despite the use of the mercurial drug the patient becomes waterlogged and the severity of heart failure progresses. Renal failure and uremia may appear. Clinical differentiation is often satisfactory, but where there is difficulty studies of the blood will indicate the presence of alkalosis, low chloride levels, and sodium levels which are usually within normal range. Potassium levels in the blood are generally normal or slightly decreased. Ionized calcium is reduced and signs of latent tetany may appear. Treatment is best carried out by stopping the mercurial drug and administering chloride ions with or without a cation exchange resin. Sodium chloride is not suitable. Chloride may be given as dilute hydrochloric acid, 3 to 5 cc. three or four times a day by mouth, or as large doses of ammonium chloride, 6 to 10 gm. in divided dose per day. Potassium salts must also be supplied. After the electrolyte disturbances are corrected the patient may become responsive to the mercurial diuretic again.

A third disturbance that may occur with the use of mercurial diuretics is the low salt syndrome.[3] This is usually due to the efficiency of the drugs in the face of low salt intake or occasionally in patients with salt-losing kidneys. It is important to watch for this circumstance in patients after prolonged therapy on low salt diets and such diuretics, as well as in those with profuse sweats, loss of blood, and vomiting and diarrhea. Renal disease predisposes to development of the syndrome. In this condition there is such an outpouring of sodium that hyponatremia develops. Chloride balance, often because of the administration of ammonium chloride, may remain satisfactory. Acidosis, with resultant reduction in carbon dioxide combining power, low blood sodium, and azotemia, frequently appears. A variable train of symptoms results — anorexia, nausea, vomiting, oliguria, apathy and, at times, mental aberration. Weakness, faintness, and tachycardia develop. Mental confusion occurs.

These symptoms, in varying combinations and in varying degree, may lead a physician to believe that certain other states are present. For example, if the patient is one with hypertensive heart disease, the development of oliguria and the presence of erythrocytes and albumin in the urine may lead the observer to conclude that terminal nephritis has developed. The presence of azotemia may lead him to believe that his impression is confirmed. He may then decide that the patient has reached a terminal state and that there is no therapy that would be effective. In many patients it also happens that the edema becomes considerably worse and it is often thought that the congestive heart failure can no longer be controlled even with increasing doses of drugs. Since more vigorous therapy tends to make the patient worse, the observer may also believe that the patient is moribund and not apply indicated treatment, namely infusion of hypertonic saline solution with added potassium. At times the clinical picture is that of peripheral collapse and the situation may be mistaken for myocardial infarction. If fever, dyspnea and cyanosis appear, as they often do, the combination of findings may cause the condition to be mistaken for pneumonia, and again the wrong treatment applied.

The low salt syndrome with the clinical picture as described does not necessarily mean that all patients with heart failure and low serum sodium values fall into this category. Serum sodium levels are often mildly reduced in congestive heart failure and may be more severely depressed by some of the factors intensifying the failure—infection, digitalis toxicity, low salt diets—which produce further decreases in sodium levels. Correction of these factors is important in the treatment. In some circumstances the reduction in serum sodium may reflect intracellular metabolism which has a bearing on the extracellular osmolarity. Although such processes are not well understood, they are thought to be causative factors in hyponatremia both in and outside the heart failure problem—for example, in pulmonary tuberculosis and in other debilitating states. The low sodium under such circumstances may not represent a true depletion of sodium but may represent reduction in tonicity of extracellular fluids to correspond to cellular metabolism. In these circumstances in heart failure, administration of hypertonic saline solution would merely tend to increase edema, for the body would tend to maintain the "new" reduced tonicity level, and with the fluid restriction needed to stimulate the increased concentration of salt, great thirst would appear.

In congestive heart failure, factors leading to such states of so called "chronic dilution hyponatremia" are not always clearly evident and are not well understood. The mere addition of hypertonic saline to the treatment in such circumstances may not help the refractory patient with edema and may even be harmful. The differentiation of such patients from

the low salt syndrome described above may be difficult. In both, edema may be striking. Both may have received intensive therapy with mercurials. Gradual onset, unrelated to mercurial therapy favors the chronic dilution type. If there is acute development of the symptomatic picture of the low salt syndrome, associated with circumstances that go along with its production, as well as its symptoms and signs, the probability is that hypertonic salt solution will have favorable effect.

Much confusion exists in the present status of the problem of hyponatremia and clinicians should be guided by the factors mentioned above. Even when accurate electrolyte determinations on the blood are available the problem of therapy still remains a difficult one.

In general, certain clinical facts also help in the differentiation of hypochloremic alkalosis and the low salt syndrome. Hypochloremic alkalosis is fairly frequent, rather acute in onset, follows only several doses of a mercurial after short term therapy. Underlying renal disease is not important and tetany occasionally develops. The salt depletion syndrome is not as common, generally follows more prolonged use of mercurials, is more common with underlying renal disease, and tetany is not associated.

Still of most importance is the careful watching of the patient before any of these circumstances develops, to prevent their occurrence. Preventive therapy will often eliminate these complications which at best have a high mortality.

A fourth disturbance, occurring in the absence of mercurial therapy, is chloride acidosis. It is sometimes seen during the administration of mercurials even though not resulting from them, especially when ammonium chloride has been given over a long period. It is important because of the symptoms developing from it. The picture is more common in the presence of renal insufficiency. The clinical picture is insidious in onset and is characterized by many of the symptoms seen in the low salt syndrome, such as anorexia, nausea, and vomiting, mental apathy and at times even mental confusion. It is important that chloride administration be stopped and the acidosis treated. This can be done with intravenous infusion of lactate or bicarbonate solution.

Hypochloremic acidosis is another late manifestation in heart failure related to malnutrition, renal disease and other factors. Electrolyte therapy is not successful. Diuretics should be stopped and salt is permitted in the diet. Edema may become more severe but after the electrolytic pattern is corrected, mercurials may again be given and salt restriction resumed.

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REFERENCES

1. Batterman, R. C., DeGraff, A. C., and Rose, O. A.: The therapeutic range of gitalin (amorphous) compared with other digitalis preparations, Circulation, 5:201, 1952.

2. Bryant, J. M., Job, V., Phillips, G. L., and Blecha, E. E.: Estimation of urinary sodium, J.A.M.A., 140:670-672, 1949.

3. Holley, H. L., and Hogan, R. S.: Electrolyte disturbances associated with mercurial diuretic therapy in congestive heart failure, Intl. Rec. of Med. and Gen. Practice Clinics, 166:415, 1953.

4. Schwartz, W. B., and Wallace, W. M.: Observations on electrolyte balance during mercurial diuresis in congestive heart failure, J. Clin. Inves., 29:844, 1950.

5. Sodeman, W. A.: Pitfalls in the treatment of the cardiac patient, K. C. Med. J., 29:5, 1953.

6. Soloff, L. A.: Some clinical aspects of refractory heart failure, Mod. Concepts. H. Dis., 19:73, 1950.

7. Welt, L. G., Orloff, J., Kydd, D. M., and Oltman, J. E.: An example of cellular hyperosmolarity, J. Clin. Inves., 29: 935, 1950.

8. Welt, L. G.: Edema and hyponatremia, Arch. Int. Med., 89:931, 1952.

Emesis and Hiccough

Treatment with Chlorpromazine

B. LYMAN STEWART, M.D., and A. G. REDEKER, M.D., Los Angeles

• Thorazine was very effective in the control of vomiting, regardless of cause, in 20 cases in which it was used. It stopped hiccough in five of seven patients treated and partially controlled it in the other two. The drug was more effective when given intramuscularly than orally. Use of the drug intravenously was observed in one case; shock occurred soon after injection.

VOMITING, ALTHOUGH USUALLY TRANSITORY, sometimes is a most aggravating problem. It can be particularly onerous in association with diseases in which hemorrhage in the upper gastrointestinal tract is a hazard, or following certain kinds of operations on the eyes or in cases of idiosyncratic reaction to drugs. Hiccough is not as prevalent as emesis but at times can be just as disturbing to the patient. When persistent in elderly patients in the postoperative period, it may be of grave prognostic purport.

Chlorpromazine, a central nervous system depressant, is a new therapeutic agent for the control of vomiting and hiccough. It was originally developed by the Rhone-Poulenc-Specia Laboratory and is marketed in France under the trade name of Largactil.* This compound has two diverse applications, one as an anti-emetic, the other as a depressant for managing excessive psychomotor activity.

The minimum lethal dose for mice varies from 50 mg. per kilogram of body weight when it is given intravenously to 500 mg. per kilogram when given orally. In dogs at intravenous dosages of 50 to 100 mg. per kilogram no deaths occurred.

No serious effects from chronic toxicity have been observed. In experimental animals the liver has decreased slightly in weight and there have been slight increases in the weights of the adrenal glands and the testes in animals examined postmortem. No deleterious effects were noted in the offspring of pregnant animals.

The anti-emetic effect of Thorazine is probably owing to its action on the medullary chemoreceptor trigger zone. Because of this, vomiting that is caused by drugs that act directly on the intestinal tract or on the nodose ganglion of the vagus nerve is not blocked by Chlorpromazine. The drug has controlled emesis in 80 per cent of all patients treated, regardless of the cause of vomiting.

Friend and Cummins[1] found the drug effective in suppressing nausea and vomiting in carcinomatosis, labyrinthitis, lymphomatosis and uremia. Vomiting caused by antibiotics, protoveratrine and narcotics was usually promptly controlled. In patients receiving nitrogen mustard and radiation therapy, vomiting was considerably reduced. Good results were obtained with the drug in cases of nausea and vomiting due to gastritis, digitalis, hexamethonium, surgical anesthesia and pregnancy. Vomiting of pregnancy was relieved in 75 per cent to 81 per cent of a total of 850 cases studied. Chlorpromazine is reported to be effective in the suppressing of vomiting in motion sickness and in relieving mental manifestations of severe psychoneurosis.[2]

Thorazine has the ability to prolong the action of narcotics, barbiturates and alcohol. This property makes it imperative to decrease the amounts of narcotics or barbiturates when prescribing Thorazine. The same property, however, may be of benefit. It has proved beneficial in the relief of pain in patients with terminal carcinoma who require large amounts of narcotics to keep them comfortable. When Thorazine is used, less narcotic is needed and the intervals between medication can be considerably increased. Thorazine has been found useful in treating withdrawal symptoms in patients addicted to narcotics.

Thorazine may be administered intramuscularly or orally. In cases of severe vomiting the intramuscular route is mandatory for the first one or two doses. For milder vomiting, oral administration is usually sufficient.

In cases observed by the authors, oral administration often was preceded by at least one parenteral injection to gain rapid control. It was noted that intramuscular injection was definitely more effective than oral administration. The amount of the drug given varied from 25 mg. to 50 mg. every four, six to eight hours, depending upon the response or the appearance of side effects.

One of the patients observed had received 50 mg.

*In this country the trade name is Thorazine.

TABLE 1.—*Results of use of Thorazine in 27 cases of emesis or hiccough.*

Case	Age and Sex	Primary disease	Emesis or hiccough	Cause	Thorazine dosage	Result
1	50 F	Postoperative pyelotomy	Emesis 72 hours	Sensitivity to narcotics	25 mg. intramuscularly, 25 mg. orally every 6 hours x 3 doses	Controlled
2	76 F	Postoperative nephrectomy	Persistent emesis	Narcotic and antibiotic sensitivity	25 mg. intramuscularly every 8 hours x 3 doses	Controlled
3	49 F	Renal colic	Emesis	Sensitivity to morphine	25 mg. intramuscularly, 1 dose	Controlled
4	48 M	Renal colic	Emesis	Sensitivity to morphine	50 mg. intramuscularly, 1 dose	Controlled
5	27 F	Acute cystitis	Emesis	Reaction to Furadantin	25 mg. intramuscularly, 1 dose	Controlled
6	82 M	Inoperable carcinoma	Emesis	Reaction to estrogens	25 mg. orally every 8 hours	Controlled
7	52 M	Carcinoma of prostate	Emesis	Reaction to stilbestrol	25 mg. orally every 6 hours, 4 doses	Controlled
8	46 M	Carcinoma of prostate	Emesis	Sensitivity to estrogens	25 mg. orally every 6 hours	Controlled as long as medication given
9	48 F	Acute pyelonephritis	Emesis	Reaction to aureomycin	25 mg. orally every 8 hours, 3 doses	Controlled
10	32 F	Postoperative pyeloplasty	Emesis	Reaction to morphine and surgery	25 mg. intramuscularly every 12 hours, 2 doses	Controlled
11	26 M	Ureteral calculus	Emesis	Reaction to Gantrisin	25 mg. orally every 6 hours, 4 doses	Controlled
12	65 F	Polycystic kidney disease, terminal	Intractable emesis	Uremia	25 mg. intramuscularly; 25 mg. every 6 to 8 hours, one week	Controlled during administration
13	46 F	Terminal chronic glomerulonephritis	Intractable emesis	Uremia	25 mg. intramuscularly every 6 hours	Controlled
14	59 M	Acute enteritis	Emesis	Enteritis	50 mg. intramuscularly followed by 25 mg. every 6 hours	Controlled
15	58 F	Acute enteritis	Emesis	Enteritis and reaction to Terramycin	25 mg. intramuscularly; 25 mg. orally; 2 doses at 4 and 6 hour intervals	Controlled
16	28 F	Acute enteritis	Emesis	Enteritis	50 mg. intramuscularly	Controlled
17	64 M	Benign prostatism	Hiccough	Followed surgery	25 mg. intramuscularly every 6 hours, 2 doses; 25 mg. orally, 3 doses	Controlled
18	72 M	Cholelithiasis	Hiccough 6 days' duration	Followed surgery	25 mg. intramuscularly	Controlled
19	78 M	Ischiorectal abscess	Hiccough 10 days	Postoperative	25 mg. intramuscularly every 8 hours, 3 doses	Controlled
20	69 M	Chronic pyelonephritis, renal calculi	Hiccough	Reaction to primary illness	50 mg. orally, 4 doses; 50 mg. intramuscularly, 4 doses; 25 mg. orally, every 6 hours, 8 doses	Partial control by continuous medication
21	74 M	Benign prostatism	Emesis	Reaction following surgery	25 mg. orally every 4 hours, 6 doses; every 6 hours, 12 doses	Controlled
22	82 M	Carcinoma bladder, chronic alcoholism	Hiccough delirium tremens	Cerebral accident after surgery	50 mg. every 3 hours, 3 doses	Controlled 12 hours; patient died 41 hours later
23	65 M	Mucocele appendix	Hiccough	Postoperative	25 mg. intramuscularly every 8 hours	Partially controlled
24	40 F	Uterine fibroids	Emesis, vertigo	Chronic toxic labyrinthitis exacerbation after hysterectomy	25 mg. intramuscularly every 6 hours, 2 doses	Controlled to preoperative status
25	25 F	Pregnancy 2 months	Morning emesis	Pregnancy	25 mg. orally every 8 hours, 4 doses	Controlled
26	24 F	Pregnancy 2 months	Emesis severe	Pregnancy	25 mg. intramuscularly, 2 doses	Controlled
27	23 F	Pregnancy 2½ months	Hyperemesis Gravidarium	Pregnancy	25-50 mg. intramuscularly every 24-36 hours	Controlled by continuous medication

of the drug intravenously. The patient went into shock and it was necessary to use artificial respiration and vasopressor substances. After 15 minutes the blood pressure gradually returned to the premedication level and respirations to normal. Perhaps the emergency was entirely fortuitous and unrelated coincidence, but until more is known about this mode of administration, it is believed that the drug should not be used intravenously.

For the most part the side effects reported are not very distressing. Drowsiness of varying degrees occurs in almost all patients who receive the drug. In the treatment of ambulatory patients, drowsiness can be combated by giving Dexedrine, 2.5 to 5 mg., with a morning and noon dose of Thorazine, or with caffeine at the same time intervals. Vertigo and tachycardia sometimes occur. Mild postural hypotension has been reported. Therefore when a first injection is given in an amount as large as 50 mg., the patient should be supine.

Jaundice in association with Thorazine therapy has been reported rarely. In one group of 2,500 cases in the United States and Canada it occurred in 13 patients. In England and Europe jaundice was noted in only three of more than 10,000 patients treated with Chlorpromazine.

Dryness of the mouth varying from mild to severe is a common side effect. In the present series complaint of dry mouth was made more often after the first dose than with the succeeding administrations of the medicine.

The use of Thorazine for treatment of emesis or hiccoughing was observed in 27 cases. Some of the patients were treated by the authors, others by colleagues. All were adults ranging in age from 23 to 82 years. All but six were hospitalized at the time they received the drug.

The results observed (Table 1) indicated the effectiveness of Thorazine as an anti-emetic and in the control of hiccough. It is to be noted that some degree of relief occurred in all cases. In two patients singultus was only partially controlled. No doubt there might have been more failures had the group been larger and the cause of vomiting and hiccough more diversified, a conclusion that is borne out by the experiences of other investigators.

The amount of Thorazine required to control emesis and hiccough was surprisingly small. Continuous daily dosage was necessary for patients with uremia, for patients in terminal illness, for those with carciñoma of the prostate, and for two of the patients with hiccough. One of the patients with vomiting of pregnancy required 25 mg. to 50 mg. of Thorazine every 72 hours to keep the vomiting under complete control. For one pregnant patient, 25 mg. intramuscularly every 24 to 36 hours was necessary. After 12 doses 50 mg. intramuscularly was required to control the vomiting.

Brief reports of cases illustrative of the effectiveness of Thorazine follow:

CASE 11 (Table 1): A 65-year-old woman in a terminal phase of uremia secondary to polycystic kidney disease had continuous vomiting and muscular twitching which had not been controlled by any therapy. The blood pressure was 190/110 mm. of mercury. The nonprotein nitrogen content was 160 mg. and the creatinine content 9 mg. per 100 cc. She was given 25 mg. of Thorazine intramuscularly, following which no emesis occurred for ten hours. From that time on 25 mg. was given orally every six to eight hours as was necessary to control the vomiting. The patient was able to take fluids and foods orally for the following week. The drug was then stopped to conserve supplies for use in less hopeless cases. Very shortly after the drug was curtailed, the patient lapsed into coma and eventually died.

CASE 12 (Table 1): A 46-year-old woman with terminal glomerulonephritis had severe nausea and vomiting of ten days' duration. After administration of 25 mg. of Thorazine intramuscularly, there was no vomiting for 26 hours. Oral medication did not completely control the emesis but intramuscular injections at six-hour intervals were satisfactory.

CASES 18 and 19 (Table 1) illustrate the effectiveness of Thorazine in the treatment of hiccough. In both of these patients the symptom was of such magnitude as to overshadow the original disease and kept the patients hospitalized. Both of them had been seen by several consultants and many of the known remedies had been tried. One of the patients had partial control of hiccoughing if he was put into deep sleep with morphine and barbiturates, but the condition always recurred. A single injection stopped the hiccoughing in this patient and he eventually was discharged from the hospital four days later. The other patient had no hiccough following one injection, but was given two other injections because the nurse attending him wanted to be sure there would be no recurrence. It was noted that both of these men went into a deep sleep of six hours' duration after the medication. Other than this no side effect of any magnitude was observed.

As far as side reactions were concerned, there were no serious symptoms observed in this group. All of the patients experienced some dryness of the mouth, especially those who were less ill and particularly those with acute enteritis. Two patients complained of vertigo but it was not severe. Drowsiness was mild to severe but was never a matter of serious concern and was even welcomed by the patients with hiccough.

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REFERENCES

1. Friend, D. G., and Cummins, J. R.: A new anti-emetic drug, J.A.M.A., 153:480, Oct. 3, 1953.

2. Winkelman, N. W., Jr.: Chlorpromazine in the treatment of neuropsychiatric disorders, J.A.M.A., 155:18, May 1, 1954.

Dystocia Due to Soft Tissue

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• In dystocia caused by abnormal conditions of the soft parts, the etiologic changes may be either in the genital tissues or in adjacent soft structures. Broadly, the conditions causing the difficulty may be grouped as follows: (1) anomalies or congenital modifications; (2) tumors; (3) modifications due to age, accident or surgical operations; (4) modification of the expulsive forces; (5) abnormalities of the products of conception.

Often in such circumstances cesarean section is necessary. Sometimes when tumor is present it can be removed before it interferes with delivery, but decision to excise the growth must be guided by such factors as the location of the lesion and the stage of gestation. This would determine to what extent the maintenance of pregnancy would be jeopardized by surgical intervention before term.

SOFT PARTS DYSTOCIA, as defined by Greenhill,[2] is "abnormal or pathological labor attributable to the soft parts of the pelvis in contradistinction to difficulties encountered because of the bony pelvis." In the present discussion, the scope is widened to include all soft tissues that may modify labor in any way. Such tissues fall into two main groups. The first of these, referred to as genital, includes all the tissues of the vulva, vagina, cervix, uterus, and adnexae. In the second, or extragenital group, are included all lesions of the perineum, bladder, rectum and retroperitoneal tissues of the pelvis.

For simplification of discussion, these various lesions, both genital and extragenital, are grouped under five different headings.

I. *Anomalies or Congenital Modifications*

The first of these, as the heading indicates, includes all anomalies or congenital modifications that may result in dystocia, whether genital or extragenital in origin. In the group of genital origin are included uterus bicornis, uterine retroflexion, uterine antiflexion, septate vagina and vaginal atresia.

In the past six years on the Obstetrical Service at Children's Hospital, San Francisco, bicornuate uterus has been observed in ten patients. Of these, four were delivered vaginally and six by cesarean section. Three others have been operated upon for removal of the uterine septum because of the patient's inability to carry to term. How effectual this treatment is, remains to be seen.

Uterine antiflexion and retroflexion was not noted in any of this group of patients. Septate vagina, however, occurred in three patients, all of whom were successfully delivered from below, following ligation and removal of the septa during the second stage of labor. There were no patients with pronounced vaginal atresia. However, in seven patients there was congenital narrowing of the vagina of sufficient degree to result in extensive vaginal lacerations at the time of delivery.

In this group in which there were lesions of the tissues of extragenital origin, are included spina bifida, exstrophy of the bladder, ectopic or pelvic kidney, ectopic or pelvic spleen, anterior sacral meningocele and teratomas of various types. Although it is extremely rare, ectopic spleen should be kept in mind in the presence of any firm pelvic tumor. An ectopic or pelvic kidney, on the other hand, is much more common, as was noted by Lovelady[7] and Krahulik.[5]

Spina bifida, especially if severe, and exstrophy of the bladder, may both modify labor. In either condition, because of faulty muscular development and disturbed innervation of pelvic muscles, vaginal delivery often leads to pronounced pelvic relaxation and even prolapsus. In spite of Lotimer's[6] and Hinman's[3] opinion that the condition of the abdominal wall, following the necessary operative procedure in the treatment of exstrophy of the bladder, presents a problem for cesarean section, it is still the preferred method of delivery in the presence of these conditions. Having seen the results of twin deliveries from below in a patient previously operated upon for bladder exstrophy and the resulting relaxation from vaginal delivery in the presence of a pronounced spina bifida, the author chose cesarean section for the delivery of the one patient in this group who had a severe spina bifida and demonstrable meningocele.

II. *Tumors*

In the second of the five groups are included all those patients in whom tumors were found involving any of the organs of the genital tract and of the bladder, rectum and retroperitoneal tissues of the pelvis. Both Lovelady[7] and Melody[8] have discussed the tumors that are found in the space behind the

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rectum and anterior to the sacrum, including those of neurogenic and myogenic origin as well as fibromas. Both of those investigators stressed the technical difficulties encountered in removal of such tumors. No tumors of this nature or any involving the rectum or bladder were noted in the past six years on the Obstetrical Service at Children's Hospital.

Of the tumors involving the genital tract, none were noted of the vulva in this particular group which actually caused dystocia. There was one patient, however, who was delivered on three occasions from below in the presence of a rapidly progressing kraurosis and other epithelial changes of the vulva. Because her mother and aunt had both died of carcinoma of the vulva, a simple vulvectomy was done following the last delivery. Since then, the patient has not conceived.

A fairly large cyst of the vagina was found in another patient on whom cesarean section was advised. Following aspiration of the cyst, however, the patient was delivered at term without difficulty from below. Unfortunately, the baby died and the patient did not return for removal of the cyst.

Of the lesions of the cervix, carcinoma was noted only once in association with pregnancy. (As the pregnancy happened to be ectopic, it is not included in this particular group.) There were, however, four patients with fibroid tumors involving the cervix. All required cesarean section at term.

The most common tumors of the uterus itself which can result in dystocia are fibroids. They may be of pedunculated, subserous or intramural type. Even submucous fibroids are not incompatible with pregnancy in occasional patients. Whereas two decades ago myomectomy was done routinely during pregnancy, the present attitude is to let such tumors alone until after delivery. In many cases myomas involute to an even smaller size following the termination of the pregnancy. Exceptions to this general rule against removal during pregnancy, of course, are cases in which the tumors create some complication such as pain due to extensive necrosis during pregnancy. In such circumstances immediate removal is indicated.

There were 18 patients in the present series in whom fibroids were the cause of dystocia. Four of them were delivered from below, following difficult labors. The remaining 14 were delivered by abdominal cesarean section, and five of the 14 had hysterectomy also. One of the two patients in whom submucous fibroids were found during the puerperium was observed within a few hours after delivery with a diagnosis of uterine inversion.

Most common of the adnexal tumors associated with pregnancy and potential causes of dystocia are simple cystomas, either of ovarian or parovarian origin. Next in frequency are dermoid cysts either of one or of both ovaries. Although rare, pseudomucinous and serous cysts, along with other malignant tumors of the ovary, do occasionally occur with pregnancy and should, therefore, always be kept in mind in the presence of dystocia due to ovarian enlargement. Finally, occasionally an ovarian fibroid may be found to be the cause of dystocia during labor.

Whenever an adnexal tumor of either solid or cystic type is found in early pregnancy it should be removed, especially if it is pedunculated, or freely movable. As there is possibility that the ovary, containing the corpus luteum, might be removed in the procedure, it has heretofore been taught that such operations should be postponed until after the twelfth week. However, in view of the recent work of Koff and Tulsky[4] especially, it would seem that the corpus luteum is not essential to maintain pregnancy in humans. Of eight patients scheduled for therapeutic abortion by Koff and Tulsky, seven carried on in spite of removal of the corpus luteum within the first few weeks of pregnancy. Certainly, operating before the twelfth week of pregnancy in patients with ovarian tumors has definite technical advantages.

Many of the cysts, however, may either be missed or develop during pregnancy to a size sufficient to cause dystocia at the time of labor. There were five patients in the present group in whom cysts were found, requiring cesarean section at term with accompanying cystectomy. In four instances single simple cysts of ovarian origin were found and removed. In the fifth patient, large cystic ovaries were observed at cesarean section, resulting from excessive hormonal stimulation by an unusually large placenta with twin pregnancy. The patient had fulminating pre-eclamptic toxemia, because of which immediate cesarean section during the seventh month was deemed advisable. Unfortunately, at the time of operation, signs of hemorrhage, probably the result of partial torsion, were observed in the left ovary, necessitating its removal. The right ovary was left intact and upon examination six weeks postpartum it was found to be involuted to normal size. It is worthy of note that this particular patient became pregnant again.

III. *Modifications Due to Age, Accident or Surgical Operation*

Included in a third group are all patients in whom the soft tissues have been modified, by age, accident or surgical treatment, enough to create dystocia. Among the patients in the present series in whom the extragenital tissues were involved in such modifications were those with excessive perineal rigidity resulting from muscular hypertrophy, calcification of that area, infection, burns, etc. One was a dancer with unusual perineal muscular development of such nature that the pelvic outlet was severely contracted

and cesarean section was necessary. Another patient had actual calcification of these same muscles as a result of horseback riding. Still another patient with excessive keloid formation resulting from extensive burns covering the lower abdomen and perineum was also delivered vaginally with some difficulty.

Enterocele, cystocele and rectocele rarely give trouble during delivery since they are usually associated with well relaxed pelvic tissue. The same is true of uterine prolapse. However, if there has been extensive repair of any or all of such lesions, delivery by cesarean section is the method of choice. This was the method of delivery of nine of ten patients with such conditions in the present series. The tenth delivered from below before she could be moved to the surgery with resulting excessive lacerations of the repaired tissues.

Of three patients in the genital group with extensive vulvar and vaginal varicosities, two were delivered uneventfully from below. The third because of the severity of the varicosities was delivered by cesarean section, and sterilization then was carried out.

Dystocia may occur in the presence of scarring and atresia of the vagina as the result of trauma and infection. Vaginal hematomas may also occasionally occur before delivery, either spontaneously or as the result of trauma. However, in the present group hematomas occurred only after delivery.

Although true cervical dystocia as a distinct entity is a moot question, occasionally in an elderly primipara the cervix can definitely be found to be a rigid resistant structure. Cervical dystocia may also be the result of hypertrophy, edema and strictures. It may follow trachelorrhaphy or cervical amputation, although these operations rarely are carried out in the child-bearing period today. It can also be the result of extensive cauterization and conization—procedures that are condemned by many obstetricians for this reason.

There were 71 patients in the group under consideration in whom cervical dystocia was noted. Twenty-five of them were delivered by cesarean section and the remaining 46 from below with the aid of forceps. Manual dilatation was employed in the delivery of four patients delivered by forceps, and for another 25 patients in the group Dührssen's incisions were necessary before delivery could be completed.

Fortunately, ventral fixations and interposition operations are procedures rarely done nowadays on patients in the child-bearing years. There were no patients in whom any such procedures had been done in this group. There was but one patient with a previous suspension and she delivered uneventfully.

There is considerable controversy regarding the method of delivery of a patient upon whose uterus extensive myomectomy or myomectomies have been done. There were four such patients in this group and three of them were delivered by cesarean section. The other, who had had a rapid, easy labor during a pregnancy previous to myomectomy, delivered uneventfully from below.

IV. *Modification of the Expulsive Forces*

Two more groups which involve only tissues of genital origin have been added to this discussion of soft tissue dystocia. The first of these includes all patients in whom sufficient modification of the expulsive forces had occurred to result in a definite disturbance of normal labor.

The first and most important of these modifications is uterine inertia. There were 42 patients in whom this occurred in the Children's Hospital group. Of these, 22 were delivered by cesarean section—16 of them not until after induction in some form had been attempted. As elsewhere expressed by the author, there is little question that a substantial proportion of these patients might have delivered from below if labor had been allowed to establish itself spontaneously.

The second of the modifications of the expulsive forces is the so-called contraction or Bandl's ring. There were four patients in whom this condition was found. Two delivered from below, one with the help of Dührssen's incisions of the cervix. The remaining two were assisted by cesarean section. It is well to bear in mind that, even with deep anesthesia, a ring of this nature may persist and necessitate a longitudinal uterine incision at the time of the cesarean section in order to deliver the baby.

Uterine rupture is another cause of modification of expulsive forces of the uterus. It must be kept in mind in the presence of sudden acute abdominal pain associated with pronounced change or cessation of the uterine contractions during labor. Although there were no cases of uterine rupture in the present group, two such cases were observed elsewhere by the author during the six-year period covered by this report. One occurred in the scar of a classical cesarean section and one in the scar of a low transverse cesarean section. Both occurred in patients in which the onset of labor was premature. In both cases hysterectomy was necessary.

The fourth causative agent in this group is acute polyhydramnos. There were only four patients in the present series in whom this condition occurred. All delivered from below. In one, early relief was sought by paracentesis through the abdominal uterine wall. Although some 4 liters of amniotic fluid were withdrawn, the patient promptly went into premature labor.

V. *Abnormalities of the Products of Conception*

In the fifth and last of these groups are included all factors involving the fetus, the cord or the pla-

centa which might modify the ensuing labor. Amongst them is the transverse presentation of the fetus. Compound presentations are also included. There were two cases of the former in the present series and both patients were delivered by cesarean section. There were no patients in this particular group with compound presentation. Soft tissue abnormalities of the fetus of various types may interfere with normal delivery. For the one patient in the series in which this occurred, cesarean section was necessary in spite of an adequate pelvis. At section, the breech was found to be the presenting part and it was prevented from dilating the cervix or engaging in the pelvis by numerous loops of fetal bowel which completely covered the internal os. These loops were found to have herniated through a large defect in the abdominal wall of the fetus and to have become thickened by exposure to the amniotic fluid.

Placental causes may occur as abnormalities. This is especially true of unusual sites of implantation. The most common of these is placenta praevia of which there were 17 cases in this group. For five patients in whom the placenta only partially covered the internal os, vaginal delivery was the method of choice. Of 12 patients with central placenta praevia, however, 11 were delivered by cesarean section; and in the one case in which cesarean section was not done the condition was not recognized until after delivery of the fetus. It was found that the latter had ruptured through a thinned-out placenta with practically no associated bleeding. Of the remaining 11 patients, one had an associated ovarian cyst filling the posterior cul-de-sac while another had an associated placenta accreta requiring complete hysterectomy.

Although rare, occasionally tumor of the placenta may cause dystocia. There were no cases of the kind, however, in the present group.

Lastly, but of extreme importance, are disturbances of the umbilical cord. There were three patients in this group in whom prolapse of the funis occurred early in the first stage of labor. All were delivered successfully by cesarean section with no fetal deaths.

Next in interest is the short or shortened cord which may either prolong labor or result in the death of the infant. Out of 171 patients in whom such a shortened cord was noted in a recent three-year period at Children's Hospital, there were only 15 in whom the cord was shortened so much as to cause clinical symptoms with modified labor. In one of these cases cesarean section was necessary and two ended in intrauterine death of the fetus.

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REFERENCES

1. deCarle, D. W.: Spinal anesthesia in cesarean section, J.A.M.A., 154:545, Feb. 13, 1954.

2. Greenhill, J. P.: Soft parts dystocia, Nebr. Med. J., 28:136, May 1943.

3. Hinman, Frank, Jr.: Concerning pregnancy after ureterointestinal anastomosis, Am. J. Obst. & Gynec., 62:192, July 1951.

4. Koff, A. K., and Tulsky, A. S.: Threatened abortion, Surg. Clin. of N. A., 33:3-15, Feb. 1953.

5. Krahulik, E. J.: Pregnancy in patients with pelvic kidney, Trans. Pac. Coast Obstet. & Gynec. Soc., 140, 1952.

6. Lotimer, L. E.: Pregnancy and delivery following bilateral ureterosigmoid transplant for exstrophy of the bladder, Am. J. Obst. & Gyn., 67:281, Feb. 1954.

7. Lovelady, S. B., and Dockerty, M. B.: Extragenital pelvic tumors in women, Am. J. Obst. & Gyn., 58:215, Aug. 1949.

8. Melody, G.: Presacral epidermoid cysts in women, Am. J. Obst. and Gyn., 63:119, May 1952.

The Use of Silicones in Dermatology

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• *A cosmetically acceptable lotion containing a silicone protectant, a keratolytic, a bacteriocidal agent and antipruritic substances, was clinically tested in 208 persons with various dermatoses.*

Twenty-four-hour closed patch tests on humans and intradermal tests in laboratory animals indicate the lotion not to be a sensitizer.

Subacute and chronic housewives' eczema and contact dermatitis of the hands, uncomplicated "diaper rash," periaural dermatitis due to excessive moisture, and certain hyperkeratotic dermatoses responded satisfactorily to the use of the lotion.

AMONG THE MORE SIGNIFICANT topical preparations that have appeared in the dermatologic field during recent years are the silicone-containing agents. The pronounced ability of these dimethylsiloxane polymers to repel moisture while remaining inert, nonsensitizing and nontoxic[2, 15, 16] has given impetus to widespread acceptance and use. Numerous commercially available preparations, ranging in silicone content from 2 per cent to 55 per cent, have been found of value in the treatment and prevention of diseases of the skin associated with prolonged exposure to moisture, soaps and detergents, irritating body discharges and certain allergens and chemicals.[4, 12, 20]

Among cutaneous conditions reported as benefited by silicone preparations are soap-water-detergent dermatitis of the hands (housewives' eczema, "dishpan hands"), contact dermatitis due to primary irritants and specific allergens, "diaper rash," perifistular dermatitis, chapping of lips, hands and face, angular stomatitis not due to vitamin deficiency,[13] pruritus of the vulvae and the anus secondary to body discharges and atopic dermatitis due to contact factors. Many persons consider the silicone preparations now in use to be cosmetically objectionable. In addition, in view of the nature, pathogenesis and sequelae of many of the diseases of the skin treated with silicones, it would seem desirable to combine the repellent properties of the material with a keratolytic agent and a bacteriocide, thereby broadening the therapeutic scope.

A consideration of housewives' eczema or "dishpan hands," the most common of all "industrial" dermatologic diseases, will serve to illustrate the desirability of a multiple-acting topical application. It is generally agreed that numerous background factors such as increased capillary permeability, allergy, atopic states, psychosomatic factors, endocrine disturbances, focal infections, avitaminosis and seasonal change may predispose certain persons to dermatitis of this type.[7, 18, 19] However, it is likewise accepted that the defatting action of soap, water and detergents, coupled with the alkalinity of soaps, most frequently precipitate housewives' eczema.[5, 9] In addition to the soap, water and detergent effects already mentioned, Van Scott and Lyon[21] demonstrated that detergents cause the loss of sulfhydryl groups from the keratin molecule, thereby altering the previously compact keratin structure and diminishing its inherent powers of protection. Sutton and Ayres and others pointed out a similar effect from alkalies such as soaps.[6, 19]

Once dermatitis of the hands is established, an endless variety of physical, bacterial and chemical agents can maintain the process despite removal of the original offending agents. As sequelae, pathologic changes in the epidermis and cutis consisting of erythema, thickening, scaling, fissuring, peeling and dryness or chapping frequently occur. Secondary infection is not an uncommon complicating factor. Frequently pruritus, stinging and burning are symptomatic accompaniments of the dermatitis. In view of these multiple pathologic sequelae of housewives' eczema, it would seem that protection from the offending agents alone is not sufficient and that a broader therapeutic approach is desirable to speed recovery.

MATERIALS AND METHODS

In view of the above considerations, a cosmetically acceptable lotion* was prepared containing the following ingredients: silicones (Dow-Corning 200 or 555) 1.5 per cent; glyoxyl diureide, 0.2 per cent;

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*Marketed under the name Silicare,® a product of the Pharmacal Division, Revlon Products Corporation.

camphor, 0.1 per cent; menthol, 0.1 per cent; hexachlorophene, 0.25 per cent; in an ethanolamine stearate lotion.

The inclusion of a substance that would favorably affect the keratin layer of skin, promoting healing by epidermal stimulation and debridement of necrotized superficial keratin, should be a valuable adjunct in topical therapy of the kind of dermatitis under discussion. Such a substance is thought to be present in glyoxyl diureide, a uric acid derivative.

Although McAllister,[10] as early as 1912, described the healing effects of this substance, it was Robinson's[14] publication in 1935, showing the active ingredient of live maggot therapy to be glyoxyl diureide, that gave impetus to the use of this chemical in this country. He found this material to exert definite healing properties, to be inexpensively made, stable and nonirritating. Ayres, Anderson and Taylor[1] demonstrated the applicability of maggot therapy and its associated glyoxyl diureide production in dermatologic conditions involving chronic ulcerative or granulomatous processes. Mecca[11] in a review article cites the digestive action of glyoxyl diureide as well as its cell-proliferant properties. Greenbaum[8] demonstrated the leukocytogenic property of the chemical following systemic administration and believed its topical healing action to be due in part to a locally-produced leukocytosis.

Because of the incidence of secondary infection in dermatitis, it was deemed desirable to combine a relatively nonsensitizing and effective bacteriocidal agent into the silicone-glyoxyl diureide preparation. Hexachlorophene[3, 17] in one-fourth per cent concentration was selected for this purpose.

To help control the pruritus, burning and stinging that so often accompany eczema of the hands, small amounts of camphor and menthol were added to the formula. Studies were then begun to determine the value of such a preparation in certain dermatologic conditions.

TOXICITY AND SENSITIZATION STUDIES

Preliminary investigation of the lotion in laboratory animals consisted of topical applications for 21 days, vaginal instillations for a similar period, intracutaneous sensitization tests and instillations into the eyes. None of these studies revealed evidence of significant irritative phenomena or tissue injury on macroscopic and/or microscopic examination. No sensitivity could be produced after 20 days of intracutaneous injections followed by a two-week rest period and then reinjection. In 24-hour closed patch tests with three materials—a lotion containing Dow-Corning 200 silicone, a lotion containing Dow-Corning 555 silicone, and Dow-Corning 555 alone—on the arms of 217 human subjects, there were no positive reactions. Eye instillation studies indicated the lotion had singularly little irritating effect on that organ (Table 1). Bacteriocidal activity was demonstrated by the complete suppression of growth of four test organisms after a five-minute exposure of 0.1 cc. each of pure culture to 1 gm. of the lotion tested.

TABLE 1.—*Occurrence of eye irritation (0.1 ml. instillation each eye)*

Rabbit No.:	1	2	3	4	5	6	7	8	9	10
Time										
1 hour	+*	0	+	+	+	+	0	0	0	+
24 hours	0	0	+	0	0	0	0	0	0	0
48 hours	0	0	0	0	0	0	0	0	0	0

*Positive reaction—hyperemia of conjunctiva.

TABLE 2.—*Results of use of materials in treatment of dermatitis of hands*

	No. of patients	Results: Complete healing	Partial healing	No healing
Housewives' Eczema				
1. Defatted, chapped	74	69	5	....
2. Defatted with active dermatitis	35	26	8	1
Subtotal	109	95	13	1
Contact Dermatitis				
1. Subacute	24	19	3	2
2. Chronic	14	7	5	2
Subtotal	38	26	8	4
Total	147	121	21	5

CLINICAL MATERIAL AND RESULTS

Suitable subjects for this study were selected from patients treated in a clinic, in private practice and in hospitals and from hospital employees of various occupations. The use of the lotion was studied in subacute and chronic phases of dermatitis only. Previous experience with silicone preparations had established these agents to be not only ineffective, but at times poorly tolerated in many acute weeping eczematous processes. While a total of 306 subjects were given the lotion, only 208 are reported upon here because of inadequate follow-up in 98 instances. Duration of treatment ranged from a few days to several months.

Housewives' eczema, "dishpan hands," was the largest single category in this study, 109 subjects participating. The patients were selected on the basis of history and clinical observations. Their hands were characterized by varying degrees of erythema, roughness of texture, defatting, cracking, scaling, fissuring, lichenification and accompanying discomfort. In all cases the disease was in the subacute or chronic phase. An arbitrary classification placed these patients in two groups. The first consisted of subjects with mild dryness, redness and/or scaling. The second group was composed of persons with

TABLE 3.—*Occupational distribution of hand dermatitis*

	No. of patients	Results: Complete healing	Partial healing	No healing
Housewife	38	33	3	2
Kitchen employee	21	18	3	....
Professional housecleaner	19	15	3	1
Laundry worker	13	12	1	....
Nurse and aide	23	17	5	1
Seamstress	3	1	2	....
Laboratory technician	4	3	1	....
Miscellaneous	26	22	3	1
Total	147	121	21	5

TABLE 4.—*Results of treatment of other kinds of dermatosis*

	No. of patients	Results: Complete healing	Partial healing	No healing
"*Diaper Rash*"				
1. Uncomplicated	19	18	1	....
2. Complicated	12	2	1	9
Total	31	20	2	9
Angular stomatitis, cheilitis, cheilitis and "saliva eczema"	14	11	2	1

the same conditions but of greater intensity and accompanied by fissuring, thickening and lichenification. Results of treatment are shown in Table 2. It was noted that in patients with an extreme degree of dryness and fissuring only slight improvement was noted until a supplementary emollient was prescribed to be used nightly. These patients then made rapid progress, but the results obtained after the addition of the emollient are not included in this study.

All the 38 patients with contact dermatitis of the hands other than housewives' eczema (Table 2) were kept at their work while using the lotion and 26 of the 38 had satisfactory improvement despite continued exposure.

Occupational classification of the subjects with dermatitis of the hands and the response obtained are shown in Table 3.

Results of use of the lotion in treatment of 31 infants with "diaper rash" and of 14 patients with angular stomatitis, cheilitis and/or "saliva eczema" are shown in Table 4.

Seven patients with atopic dermatitis were treated. One of them, in whom the disease was caused by a specific allergen, had partial healing. Of six cases due to undetermined allergens, one responded with complete healing, three partially improved and two did not heal. Of three patients with numular eczema, one had partial improvement and two had none.

Six persons with follicular hyperkeratosis or hyperkeratotic dermatoses were treated, of whom two had complete healing and four had partial healing. However, all these patients had been under treatment for only two to three weeks, and the response elicited was striking. This group will be considered further.

DISCUSSION

In evaluating the results obtained in dermatitis of the hands, it must be borne in mind that a large proportion of the cases treated were of a mild degree of involvement that ordinarily would not cause the patient to seek a dermatologist's help. However, such cases make up the largest single group of "industrial" dermatoses and are the forerunners of most instances of severe and disabling dermatitis of the hands. The significance of clearing housewives' eczema before more severe pathological change occurs is obvious. To this end, the role of the lotion studied is conclusively demonstrated. The cosmetic acceptability of the preparation was frequently commented upon; particularly as to the nongreasy, nonsticky and invisible characteristics. Antipruritic properties were observed in many instances, sometimes due to the healing effected and at other times due to the immediate application.

One of the more striking effects observed was the rapidity with which hyperkeratinization, as evidenced by roughness, scaling and thickening disappeared. This characteristic evoked frequent spontaneous comment from patients. As was previously noted, persons with an extreme degree of dryness or pronounced fissuring had only partial improvement until an emollient was prescribed as a supplementary nightly treatment. Evaluation of these patients for this study was based only on response up to the time the emollient was added. Most of the instances of "partial improvement" in dermatitis of the hands were in patients whose skin remained excessively dry.

Tolerance to the lotion was extremely good, with only a few instances of irritation. This occurred mostly in the complicated "diaper rash" group. Secondary infections, concomitant atopy, and severe, although subacute, dermatitis made up most of the complications.

The results obtained in "saliva eczema" due to drooling, licking, thumb-sucking and lip-biting, indicate the lotion to be of considerable value in treatment and prevention.

The findings in the very small group of patients with atopic dermatitis studied were inconclusive. Unsatisfactory response of numular eczema was observed in the three cases treated.

One of the more interesting observations made in this study was the effect of the lotion upon keratosis pilaris and other hyperkeratotic states. One of the participating pediatricians prescribed the lotion for a six-year-old patient who had an extreme degree of ichthyosis and keratotic plugging on the arms, thighs and legs. After one week of therapy, a decided

change was noted, and by the end of the second week improvement was pronounced. In all, six patients with hyperkeratotic dermatoses were treated, with two completely healed and four having partial but decided improvement. Further investigation along this line is being carried out.

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REFERENCES

1. Ayres, S., Jr., Anderson, N. P., and Taylor, G. M.: Maggot therapy in dermatologic practice, Arch. Derm. and Syph., 33:21-30, Jan. 1936.

2. Barondes, R. DeR., Judge, W. D., Towe, C. G., and Baxter, M. L.: The silicones in medicine, The Military Surgeon, 106:379-387, May 1950.

3. Blank, J. H., Coolidge, M. H.: Degerming the cutaneous surface (II. hexachlorophene G-11), J. Invest. Dermat., 15:257-263, July 1950.

4. Brown, J. B., Fryer, M. P., et al.: Silicones in plastic surgery, Plastic and Reconst. Surg., 12:374-376, Nov. 1953.

5. Brunner, M. J.: Dermatitis of the hands due to household cleansers, J.A.M.A., 154:894-897, March 13, 1954.

6. Emery, B. E., and Edwards, L. D.: The pharmacology of soaps, irritant acting soaps on the human skin, J. Am. Phar. Association Sci. Ed., 29:254-255, 1940.

7. Engman, M. F., Jr.: Eczema of the hands in housewives, So. Med. J., 47:67-69, Jan. 1951.

8. Greenbaum, F. R.: Allantoin, a possible leukocytosis producing factor, Med. Record, April 1940.

9. Jordan, J. W., Dolce, F. A., and Osborne, E. D.: Dermatitis of the hands in housewives, J.A.M.A., 115:1001-1004, Sept. 21, 1940.

10. McAllister, C. J.: A new cell proliferant: its clinical application in the treatment of ulcers, Brit. Med. J., 1:10, 1912.

11. Mecca, S. B.: Allantoin, a review of its history and therapeutic properties, Philadelphia Med., March 30, 1946.

12. Morrow, G.: The use of silicones to protect the skin, Calif. Med. 80:21, Jan. 1954.

13. Reiches, A. J.: Angular stomatitis treated with silicote ointment, Arch. Derm. and Syph., 68:336-337, Sept. 1953.

14. Robinson, W.: Stimulation of healing in non-healing wounds, J. Bone and Joint Surg., 17:267-271, April 1935.

15. Rowe, V. K., Spencer, H. C., and Bass, S. L.: Toxicologic studies on certain commercial silicones, Arch. Indus. Hyg. and Occup. Med., 1:539-544, May 1950.

16. Rowe, V. K., Spencer, H. C., and Bass, S. L.: Toxicological studies in certain commercial silicones and hydrolyzable silane intermediates, J. Indust. Hyg. and Toxicol., 30:322, Nov. 1948.

17. Shay, D. E.: A study of the effectiveness of skin detergents under conditions of use, Oral. Surg., 4:355-368, March 1951.

18. Sulzberger, M. B., and Baer, R. L.: Eczematous eruptions of the hands, Yearbook of Derm. and Syph., 7:43, 1948.

19. Sutton, R. L., and Ayres, S., Jr.: Dermatitis of the hands, Arch. Derm. and Syph., 58:266-285, Sept. 1953.

20. Talbot, J. R., MacCregor, J. K., and Crowe, F. W.: The use of silicate as a skin protectant, J. Invest. Dermat., 17:125-126, Sept. 1951.

21. Van Scott, E. J., and Lyon, J. B.: Chemical measures of effect of soaps and detergents on the skin, J. Invest. Dermat., 21:199-203, Sept. 1953.

Management of Resectable Lesions Of the Small Bowel

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• During a 12-year period at the Los Angeles County General Hospital there were 364 cases of resection and anastomosis of the small intestine which were classified and studied. Particular attention was paid to the methods of anastomosis. There were more wound infections, fistulas and otherwise faulty anastomosis with the open than with the closed technique. In the presence of a peritoneal cavity not previously contaminated by bowel content, a closed anastomosis is better and safer than an open anastomosis.

THE IMPORTANCE of the management of resectable lesions of the small intestine has been accentuated by a study of 364 cases in which resection and anastomosis of the small bowel was done at the Los Angeles County General Hospital between 1940 and 1952. Two hundred fifty-one of the operations were done because of intestinal obstruction and 113 were done in cases in which there was no obstruction.

OBSTRUCTIVE LESIONS

The kinds of obstructive lesions that necessitated resection are shown in Table 1. The overall mortality rate (36.25 per cent) seemed unduly high, but it compared favorably with data given in many other studies. For example, Nemir[3] from the University of Pennsylvania reported a mortality rate of 37.5 per cent in resections done for intestinal obstruction caused by hernia. It must be remembered that most of the patients with such lesions have gangrenous bowel, are critically ill and are brought into a large charity institution in grave emergency. Certainly complicated cases of intestinal obstruction necessitating bowel resection demand the most mature surgical judgment and delicate surgical technique.

In about half the cases of hernia in the present series the rupture was through the femoral canal. Such lesions frequently are handled most easily through an extraperitoneal midline suprapubic incision known as the Henry approach. With this approach it is relatively easy to enter the peritoneal cavity, resect the gangrenous bowel and hernial sac without opening the sac and then carry out aseptic anastomosis.

Incarcerated and strangulated umbilical hernias are notoriously difficult to handle.[5] The mortality for resection of the small bowel in this series was 75 per cent. Of the last six patients in this series who had gangrenous bowel in an umbilical hernia only one survived resection. Patients with this condition are often obese and have less than normal vital capacity. Umbilical hernias are usually loculated and so large that the bowel has lost its right of domicile in the peritoneal cavity. After the gangrenous bowel has been resected it may be better merely to close the hernial sac and fascia loosely and leave repair of the hernia to a later date.

Hugely dilated loops of bowel filled with gas and fluid are often present in small bowel obstruction. Aseptic decompressive suction enterotomy done just above the point of obstruction is a valuable procedure. It permits returning the bowel to the peritoneal cavity in a less traumatic manner and aids the bowel to regain its tone in the postoperative period. Various modifications of Wangensteen's method[6] of suction enterotomy have been tried. The procedure is tedious and takes practice, but is worthwhile when properly done. The site of the enterotomy can be resected with the gangrenous bowel.

It is gratifying to note that resection is being used in the treatment of intussusception with a fairly low mortality rate. Resection is necessary when the intussusception is irreducible or has become gangrenous. Children with this condition are usually desperately ill; so the mortality rate of 28.5 per cent in the present series is understandable.

TABLE 1.—*Obstructive lesions requiring small bowel resection*

Cause	Number	Deaths	Mortality Per cent
Hernia	105	39	37.1
Adhesions	60	20	33.3
Volvulus	36	14	38.8
Metastatic carcinoma	14	5	35.7
Carcinomatosis	3	1	33.3
Small bowel tumors	9	4	44.4
Intussusception	7	2	28.5
Miscellaneous	17	6	35.3
Total	251	91	36.25

From the Los Angeles County General Hospital.

Presented before the Section on General Surgery at the 83rd Annual Session of the California Medical Association, Los Angeles, May 9-13, 1954.

NONOBSTRUCTIVE LESIONS

The nonobstructive lesions in the present series are listed in Table 2. Here too the mortality rate was high (35.3 per cent).

Penetrating wounds were more common than nonpenetrating wounds. It is axiomatic that all penetrating wounds of the abdominal walls (anterior, posterior, superior and inferior) require surgical exploration of the abdominal cavity regardless of the apparent insignificance of the traumatizing object and the nature and direction of the external wound. Exploratory laparotomy in a patient without abdominal visceral injury is usually tolerated very well. On the other hand, often if visceral injury is present and exploration is not done the patient dies. Nonpenetrating trauma may forcefully separate the jejunum where it is loosely anchored at the ligament of Treitz or may crush the bowel between the traumatizing object and the vertebral bodies. Bosworth[1] collected reports of 1,593 cases of nonpenetrating perforations and noted that the mortality rate was 56.2 per cent. In the management of "traumatic abdomens" all the viscera must be examined and the entire small bowel must be run between the surgeon's fingers. Resection is necessary when the bowel is extensively crushed, completely transected, torn from its mesentery or perforated in many places close together. Obviously, there is no reason to do aseptic anastomosis if the peritoneal cavity is already contaminated by open bowel, unless the surgeon feels such a technique is safer or more rapid in his hands. In such cases there is a tendency to eviscerate, but this usually can be prevented by closure of the abdomen with through and through steel wire retention sutures.

The mortality rate associated with resection for fistulas of the small bowel was fairly low in the present series. Pattison[4] advocated that external fistulas be approached by an incision away from the external opening in order to avoid both the contaminated wound and the bowel adherent to the peritoneum beneath the external fistulous tract.

In mesenteric thrombosis the mortality is high whether or not operation is performed. The fact that in the present series five out of sixteen patients with resected bowel survived demonstrates that bowel should be resected if the process is not too widespread.

Joergenson and Weibel[2] collected data on 100 cases of tumor of the small bowel at Los Angeles County General Hospital and noted that adenocarcinoma was the most common lesion and the ileum the most frequent site of all tumors. For carcinoma, very wide resection should be done. Carcinoid tumors should be resected even though metastasis has occurred because there is some evidence that deep x-ray therapy may be of value postoperatively.

TABLE 2.—*Nonobstructive lesions requiring small bowel resection*

Cause	Number	Deaths	Mortality Per cent
Trauma	46	18	39.1
Metastatic carcinoma	16	5	31.3
External fistula	13	1	7.6
Internal fistula	2	0	0
Mesenteric thrombosis	16	11	68.7
Small bowel tumors	8	3	37.5
Miscellaneous	12	2	16.7
Total	113	40	35.3

TABLE 3.—*Type of anastomosis*

	Open	Closed
1940-47	68	90
1947-50	49	38
1950-52	87	11
	204	139

X-ray therapy should also follow resection of lymphosarcoma. Benign tumors need be resected only locally if the surgeon is sure that the tumor is benign. Otherwise wide resection should be done.

METHODS OF ANASTOMOSIS

This study was originally begun in an effort to learn the best way of making an anastomosis of small bowel to small bowel. It has been of value in demonstrating the relative merits of open and closed (aseptic) techniques of small bowel anastomosis. Anastomosis involving large bowel was not studied. Preoperative preparation with sulfonamides and antibiotics usually was not possible in the patients in the present series.

Of the three major methods of approximating the bowel, the end-to-end approximation was made 297 times, the side-to-side 64 times and the end-to-side only three times. Before the antibiotic era, surgeons were particularly careful in their operative technique. There was a tendency to favor closed anastomosis because it was relatively aseptic. In recent years there has been a definite trend toward preference for open techniques. This is shown in Table 3. At present closed anastomosis is seldom done on small bowel.

COMPLICATIONS OF ANASTOMOSIS

Since sometimes certain surgical techniques are accepted without definite proof that they are the best procedure, it is well to review results from time to time. Results of methods of anastomosis may be considered in the light of the complications encountered. One of the complications is wound infection. For fair appraisal, cases in which the peritoneal cavity has been contaminated by bowel content prior to operation, such as in gunshot and stab wounds,

TABLE 4.—Wound infections

	Open Per cent	Closed Per cent
1940-47	52.7	24.0
1947-50	33.3	25.0
1950-52	33.3	10.0

TABLE 5.—Complications of open and closed small bowel anastomoses

	Open	Closed
Total cases	204	139
Wound infections	49	19
Fistula	15	2
Faulty (noted at reoperation)	0	4
Faulty (noted at autopsy)	5	2
Cases excluded from total	9	1
Total unsatisfactory anastomoses	60 (29.4%)	26 (18.7%)

must be eliminated, and only patients who live long enough to develop wound infection can be included —a period arbitrarily set at ten days from the day of operation in this study. Wound infection in this series occurred oftener with open than with closed anastomosis (Table 4). Few antibiotics were used in the Los Angeles County General Hospital before 1947. After that date the use of antibiotics steadily increased and the incidence of wound infection decreased to some extent. Apparently contamination of the wound occurred frequently in association with both open and closed anastomosis, but roughly twice as often with the former. In 71 of 119 cases in which the bowel was gangrenous open anastomosis was done and wound infection developed in 35 cases (48.3 per cent). Closed anastomosis was done in the other 48 cases and wound infection occurred in 11 (22.9 per cent). Apparently when the bowel was gangrenous the incidence of wound infection was at least twice as great with open as with closed anastomosis.

All the complications occurring with open and closed anastomosis are summarized in Table 5. A fecal fistula denotes a bad anastomosis. The percentage of fecal fistulas occurring with open anastomosis (7.3 per cent) was five times that occurring with closed anastomosis (1.4 per cent). No patient who had open anastomosis had to be reoperated upon, but it was necessary to reoperate in four cases in which closed anastomosis was used. In two of the latter cases there was obstruction, presumably at the site of anastomosis; in another a leak had developed and in the fourth a mesenteric abscess had formed although the anastomosis itself was satisfactory.

There were 52 cases suitable for study in which autopsy was done. In 31 of them open anastomosis had been done and in 21 closed anastomosis. In the five cases of faulty open anastomoses (Table 5) the shortcoming was leakage at the suture line in all cases, usually at the mesenteric attachment. Closed anastomosis was faulty in two cases observed at autopsy—stenosis at the suture line in both. Excluded from the total were cases in which there were complications of more than one category: For example, a case in which there was both wound infection and fistula. Nearly 30 per cent of the 204 open anastomoses were unsatisfactory, whereas fewer than 20 per cent of the 139 closed anastomoses were unsatisfactory.

DISCUSSION

This study demonstrates that considerable attention needs to be paid to the anastomosis of small bowel. It is a delicate operative procedure. Every surgeon should be able to do all types of anastomoses well. The figures in this study tend to indicate that there must be more contamination of the wound with open anastomoses in spite of the aid from antibiotics. Therefore, the surgeon may not be justified in doing an open anastomosis on unprepared small bowel when the peritoneal cavity has not been contaminated. However, wound infections and other complications occur rather often in association with both open and closed anastomosis. In closed anastomoses there were three proved failures of the anastomotic line—fistula in two cases and leakage, discovered at reoperation, in the other. There were in all 20 failures of open anastomoses, although one reason for choosing open anastomosis is to be absolutely sure of the closure particularly at the mesenteric angle. Failure of closed anastomosis occurred in four cases because of stenosis at the suture line. Stenosis did not occur in association with open anastomoses. The possibility of postoperative bleeding at the suture line is an argument against closed anastomosis. There were no postoperative hemorrhages from the suture line in the 364 cases studied.

Resident surgeons did most of these operations. In recent years the residents have shown a pronounced tendency to favor open anastomosis. The attending staff surgeons have always had a preference for the open operation. Many of the complications occurred in patients operated upon by the attending staff. Certainly they would not continue to use open anastomosis if the results were not relatively good. Nevertheless, this study raises a question. Are surgeons critical enough of their results, particularly in regard to wound infection? It is difficult for an individual surgeon to collect data on a statistically significant number of cases in which he himself has done the operation. Hence he must base his conclusions upon impressions. It would be

well for all surgeons to reevaluate their methods of small intestinal anastomosis and to concentrate on surgical technique. Surgeons must be prepared to resect bowel whenever they open the abdomen and must pay careful attention to the fundamental operative techniques, such as protection of the wound with towels, good hemostasis without causing necrosis, careful placing of sutures, particularly at the angles, gentle handling and the avoiding of spillage of bowel content.

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REFERENCES

1. Bosworth, B. M.: Perforation of the small intestine from nonpenetrating abdominal trauma, Am. J. Surg., 76: 472-479, Nov. 1948.
2. Joergenson, E. J., and Weibel, L. A.: A study of small bowel tumors with special emphasis on clinical aspects, Calif. Med., 75:395-399, Dec. 1951.
3. Nemir, P., Jr.: Intestinal obstruction, Ann. Surg., 135: 367-375, March 1952.
4. Pattison, A. C.: Personal communication.
5. Paxton, J. R., and Gaspar, M. R.: Incarcerated and strangulated umbilical hernia, Bull. L. A. Surg. Soc., 1:89-91, June 1948.
6. Wangensteen, O. H.: Intestinal Obstructions, Charles C. Thomas, publisher, Springfield, Ill., 1942.

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Intravenous Administration of Fat Emulsions

Metabolic and Clinical Studies

LAURANCE W. KINSELL, *M.D.*, GILBERT C. COCHRANE, *M.D.*,
MARJORIE A. COELHO and GEORGE M. FUKAYAMA, Oakland

• Fat emulsions alone or in alternation with amino acid mixtures were administered by continuous intravenous infusion to human subjects. Adequate nutrition was maintained thereby, without untoward effects. Upon too rapid administration of such emulsions, toxic manifestations occurred, apparently referable to an "overload" of the enzyme systems concerned with fat catabolism and storage.

THE TWO MATERIALS available for parenteral feeding are sugars and protein hydrolysates. With neither of these is it possible to maintain caloric and protein equilibrium in a person who has to subsist entirely on parenteral feeding over a long period, for the unhappy choice is between giving so concentrated a solution that sclerosis of the veins results, or so dilute a solution that the patient literally may be drowned if attempt is made to administer as much as 1,800 calories daily.

The solution to the problem lies in the availability of a fat emulsion suitable for intravenous use. A variety of such emulsions have been prepared and have been evaluated in animals and humans, but have been found to be unsuitable for general clinical application because of either "breaking" of the emulsion or the presence in the emulsion of materials that are toxic to the recipient.[1, 2, 3, 4, 5]

During the past year the authors have evaluated several small lots of fat emulsion prepared by the Research Department of Armour Laboratories. These emulsions had been shown to be highly stable, and to produce essentially no toxic manifestations in laboratory animals when infused at a reasonable rate.

Chart 1 gives data on the initial study—the infusion of 400 cc. of a 10 per cent emulsion over a two-hour period into a patient who was under study on the metabolic ward. In a clinical sense the infusion was completely uneventful. Chemically it was noted that the neutral fat content in the plasma had reached approximately 800 mg. per 100 cc. at the end of the infusion, and that the level fell rapidly after the infusion was completed. A very slight elevation of blood ketones was also noted, and a significant decrease in the iodine number of the plasma. The decrease in iodine number presumably was referable to the dilution of endogenous plasma lipids with the infused material, which was low in unsaturated fatty acids.

The next study (Charts 2 and 3) was carried out as a two-day balance procedure in a patient who was

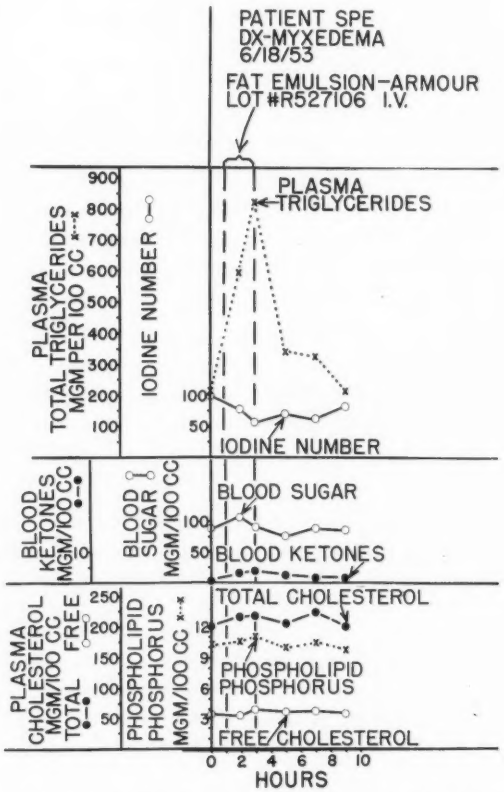

Chart 1.—Infusion of fat emulsion (20 gm. of fat per hour) for a two-hour period, brought about a rapid rise in plasma triglycerides but no untoward clinical effects.

From the Institute for Metabolic Research of the Highland Alameda County Hospital, Oakland.

Presented before the Section on General Medicine at the 83rd Annual Session of the California Medical Association, Los Angeles, May 9-13, 1954.

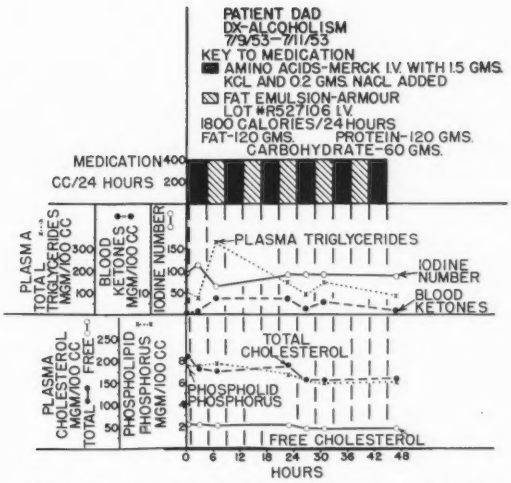

Chart 2.—Alternate infusion for four-hour periods of 100 cc. of 10 per cent fat emulsion (plus 5 per cent glucose) and 10 per cent amino acid mixture, is well tolerated clinically and biochemically.

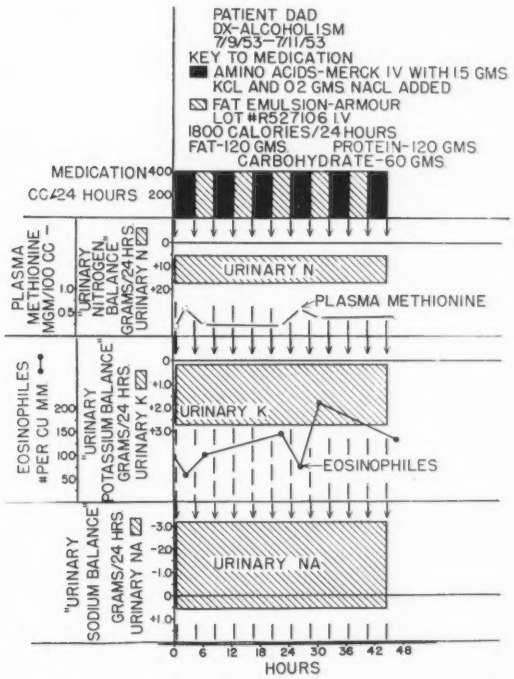

Chart 3.—The infusion referred to in Chart 2 resulted in a strongly positive nitrogen balance throughout a 48-hour period. The reason for the sodium diuresis is unknown.

recovering from an alcoholic episode. The fat emulsion was infused intermittently with a 10 per cent amino acid mixture, each being administered at the rate of 100 cc. per hour. It will be noted in the charts

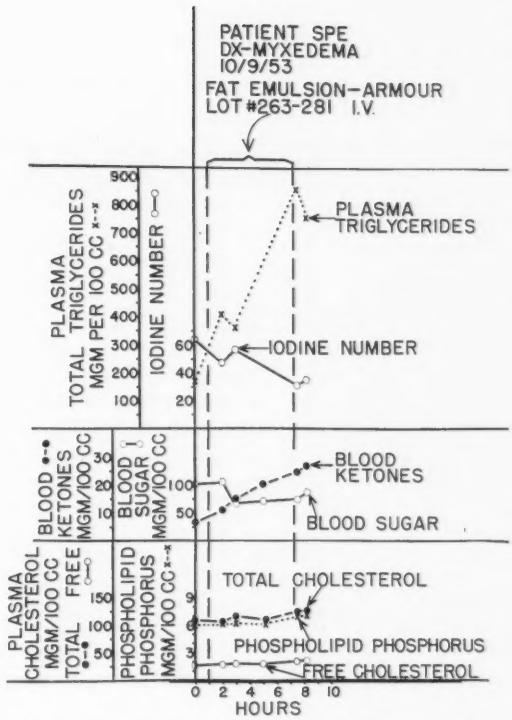

Chart 4.—Infusion of a 10 per cent fat emulsion at a rate of 20 gm. of fat per hour for a six-hour period resulted in a rapid rise in plasma neutral fat and blood ketones, and eventually in production of toxic manifestations.

that the initial rise in plasma triglycerides was followed by a fall, even though the infusion continued, apparently attributable to a "compensation" of the body machinery concerned with utilization of fat. The blood ketones rose moderately and then gradually fell. During the period of infusion, the patient received 1,800 calories per day with the distribution between fat, protein and carbohydrate as shown. He was in strongly positive nitrogen balance throughout.

The next study (Chart 4) was carried out on the patient who received the initial infusion. The fat emulsion was infused at a rate of 200 cc. per hour throughout a six-hour period. Nausea, vomiting and some low back pain began approximately an hour after the infusion was completed, and continued for two hours. Temperature elevation appeared during the infusion and continued for several hours thereafter. It will be noted that under these conditions the blood ketones rose rapidly to levels of approximately 25 mg. per 100 cc. and the triglycerides to values above 800 mg. per 100 cc.

The final study (Charts 5 and 6) was of a three-day balance in an elderly man with osteoporosis. The infusion was carried out as in the first balance procedure, at the rate of 100 cc. per hour, with the

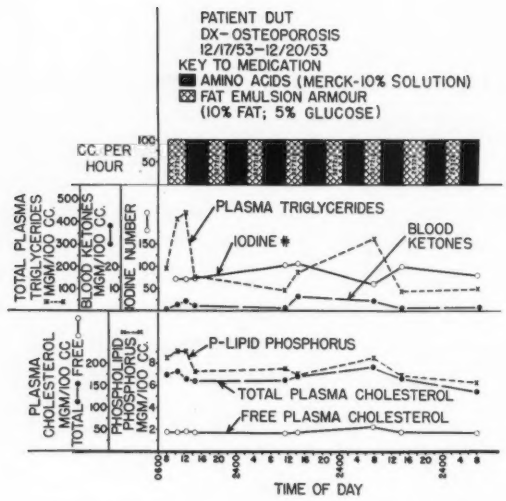

Chart 5.—Infusion carried out as in Chart 2 for a three-day period in an elderly patient was well tolerated clinically and biochemically.

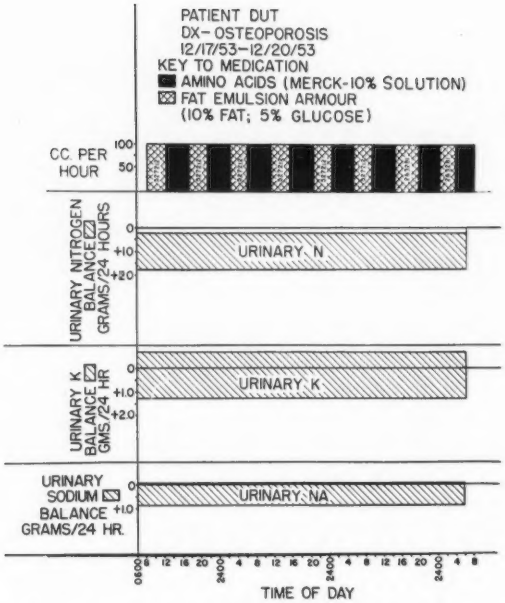

Chart 6.—Three-day parenteral feeding with alternate fat emulsion and amino acid solution resulted in a positive nitrogen balance. Potassium loss may have been related to increased urinary output.

amino acid mixture and fat emulsion alternating. The pattern with regard to plasma triglycerides and blood ketones as well as clinical status was essentially identical with that noted in the initial balance study. The patient was in positive nitrogen balance throughout.

DISCUSSION

From the foregoing, it appears that the infusion of a properly prepared fat emulsion in human subjects can result in maintenance of adequate nutrition without untoward effects. It further appears that too rapid administration of such an emulsion results in toxic manifestations, which presumably are attributable to an accumulation of fat in abnormal locations. Interference with essential metabolic processes results. Additional work will be required to determine the minimal, maximal and optimal tolerance in terms of grams of fat per kilogram of body weight. On the basis of clinical and biochemical data so far available, the infusion of 20 grams of fat per hour for six hours exceeds the tolerance of an adult of average size, but 10 grams per hour is well tolerated.

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REFERENCES

1. Geyer, R. P., Watkin, D. M., Matthews, LeR. W., and Stare, F. J.: Parenteral nutrition. XI. Studies with stable and unstable fat emulsions administered intravenously, Proc. Soc. Exper. Biol. Med., 77:872-876, 1951.

2. Neptune, E. M., Geyer, R. P., Saslaw, I. M., and Stare, F. J.: Parenteral nutrition. XII. The successful intravenous administration of large quantities of fat emulsion to man, Surg., Gyn. Obst., 92:365-369, 1951.

3. Van Itallie, T. B., Waddell, W. R., Geyer, R. P., and Stare, F. J.: Clinical use of fat injected intravenously, Arch. Int. Med., 89:353-357, 1952.

4. Waddell, W. R., Geyer, R. P., Saslaw, I. M., and Stare, F. J.: Normal disappearance curve of emulsified fat from the blood stream and some factors which influence it, Am. J. Physiol., 174:39-45, 1953.

5. Waddell, W. R., Van Itallie, T. B., Geyer, R. P., and Stare, F. J.: Liver function during intravenous infusion of emulsified fat to humans, Ann. Surg., 138:734-740, 1953.

Progress in Blood Preservation

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• *Disodium ethylenediamine tetraacetate (Na_2EDTA) is a powerful anticoagulant for blood. It preserves the cellular elements of the blood better than the anticoagulants commonly used. It is practically atoxic and almost completely excreted.*

Blood preserved with the disodium ethylenediamine tetraacetate is useful for transfusion after storage of three to four weeks. The addition of glucose and raffinose increases the survival time of the erythrocytes for from four to six weeks.

The disodium calcium complex may be used for the preservation of whole blood. It is completely atoxic.

Ethyl alcohol-saline-sugar solutions preserve erythrocytes for at least 150 days; they are excellent preservatives for the agglutinogens.

Whole blood preserved with glycerin-raffinose-glucose may be frozen at —20° C. for at least two months, and probably for a longer period, without excessive hemolysis after thawing.

THE PRESERVATION of erythrocytes in vitro for long periods has long been a problem. Present methods of preservation are inadequate for storing sufficient blood to cope with any large scale emergency. The great demand for stored blood during World War II stimulated the search for more efficient preserving media.

Sodium citrate, introduced in 1914, is the most widely used anticoagulant for blood even though it has been demonstrated to be one of the poorest preservatives. This was first recognized by Rous and Turner[11] who added glucose to sodium citrate to prolong the lifetime of erythrocytes in vitro. A variety of modifications of the original citrate-glucose media have since appeared and at present citrate-citric acid-glucose solution (ACD) is preferred. The usefulness of stored blood preserved with ACD solution is limited to two to three weeks.

Dyckerhoff[4] and co-workers, in search of more powerful anticoagulants for blood, investigated a number of new synthetic organic substances. The compounds investigated were the potassium and sodium salts of esterified sugar acid, the sodium salt of diglycolic acid, the sodium salt of esterified tartaric acid, esterified sorbite and ethylenediamine tetraacetic acid (EDTA). The latter was the most powerful.

CHEMISTRY

Ethylenediamine tetraacetic acid* is a polyaminocarboxylic or unnatural amino acid (Figure 1). It is a solid white substance with a melting point of 240° C. It is almost insoluble in either cold or hot water. It is soluble in hot formamide, from which it may be crystallized on cooling. It is also soluble in 5 per cent or stronger mineral acids (hydrochloric, sulfuric) but not in organic acids (acetic, etc.). It is a tetra-basic acid. EDTA forms a series of di, tri and tetra sodium and potassium salts. These salts are insoluble in organic solvents and have a limited solubility in aqueous alcohol. The EDTA alkali salts are relatively stable compounds and are odorless and tasteless. The crystalline acid and sodium salts are nonhygroscopic. They are stable on prolonged heating at 150° C. although the hydrates will loose water of crystallization over 100° C. The aqueous solutions of the EDTA salts do not hydrolyze or deteriorate. They are noncolloidal, chelating or complexing agents resembling the polyphosphates. They deionize alkali cations and heavy metals, or in other words are water soluble ion exchangers. The most interesting and valuable property of EDTA is its ability to form strong nonionized soluble chelate complexes with divalent cations including calcium, magnesium, barium, strontium, rare earth metals (radium, polonium), copper, cadmium, cobalt, zinc, lead, manganese and nickel. Complexes are also formed with trivalent metal ions such as aluminum, iron, chrome and vanadium.

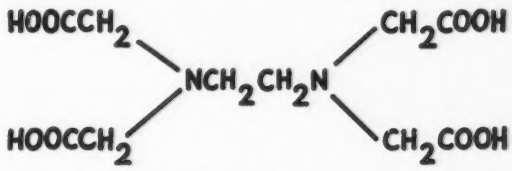

Figure 1.—Formula for ethylenediamine tetraacetic acid.

From the Santa Clara Valley Blood Center, San Jose, California.

Presented before the Section on Pathology and Bacteriology, at the 83rd Annual Session of the California Medical Association, Los Angeles, May 9-13, 1954.

*Ethylenediamine tetraacetic acid is manufactured by the Alrose Chemical Co., Providence, R. I., under the trade name "Sequestrene" and by the Bersworth Chemical Co., Framingham, Mass., under the trade name "Versene."

Disodium calcium ethylenediamine tetraacetate ($Na_2CaEDTA$) is water soluble and only slightly alkaline. Calcium occurs as part of a complex anion and is bound so securely that it no longer exhibits any of its characteristic cationic properties. It does not, however, give any characteristic tests for calcium, no precipitate with phosphate, carbonate, hydroxide or even with oxalate, the most sensitive test for calcium.

Recently $Na_2CaEDTA$ has been used successfully in the treatment of metallic poisonings (lead, beryllium, vanadium) and therapy for injury from radioactive substances. The magnesium complex gives promising results for the treatment of hypertension. The structural formula is shown in Figure 2.

When EDTA became available in this country, a reinvestigation of its anticoagulant and preservative properties for blood was made. The results did not confirm Dyckerhoff's conclusion that EDTA was no better than sodium citrate; besides its powerful anticoagulant effect the cellular elements of the blood were found to be better preserved than with sodium citrate, heparin or the oxalates. These observations were recently confirmed by Wittgenstein,[17] Hadley and Larson[5] and Schmidt[12] and co-workers.

Three alkali salts of EDTA are now available, di(Na_2), tri(Na_3) and tetra(Na_4) sodium salts. The disodium salt (pH 5) is preferred, but the trisodium salt (pH 8.5) is also suitable as an anticoagulant. The tetrasodium salt (pH 12) is too alkaline and it is hemolytic.

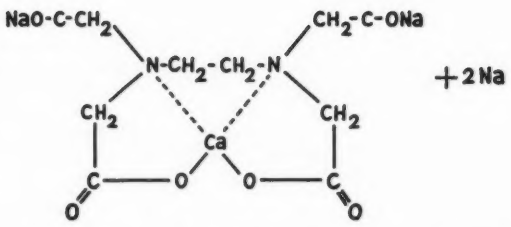

Figure 2.—Formula for disodium ethylenediamine tetraacetic acid.

EFFECT OF MINIMAL QUANTITIES OF Na_2EDTA ON WHOLE BLOOD

Quantities of 0.5 mg. to 1 mg. of Na_2EDTA will prevent 1 cc. of human blood from coagulating. In this respect it is ten times more effective than sodium citrate. The anticoagulant effect is due to the binding or chelating of the blood calcium. It is easily soluble in blood and may be added in solid form, or may be dissolved in distilled water or, better, in an 0.85 per cent sodium chloride solution. Five one-hundredths to 0.1 cc. of a 10 per cent solution is sufficient to prevent 5 cc. of blood from clotting. The aqueous solution in a concentration of 4.5 per cent is isotonic for human blood; it has a pH of about 5. The hemoglobin and its oxygen combining power is not impaired by Na_2EDTA. Blood preserved with 0.3 per cent Na_2EDTA only showed traces of methemoglobin after storage of 52 days at 4° C. The electrophoretic pattern of the plasma proteins is not changed. The proteins are not precipitated by Na_2EDTA. The dried plasma of blood preserved with Na_2EDTA is readily soluble in normal saline solution. The hemagglutinogens are well preserved for at least four weeks, if blood is stored at 2 to 4° C. Zuker[18] recently reported that the prothrombin time of Na_2EDTA treated plasma, after optimal recalcification, is longer than that of oxalated plasma. Clot retraction occurs in the usual manner in the presence of platelets. In the two-stage prothrombin determination in which plasma is considerably diluted, normal values are obtained. This finding and the prolonged recalcification time may be attributed to the effect of Na_2EDTA on the thrombin-fibrinogen reaction.

Considerable individual variations were observed in the preservation of the cellular elements of the blood. The following findings are only approximate values. There is a wide variation of spontaneous hemolysis with different bloods. Spontaneous hemolysis occurred in Na_2EDTA-preserved blood from 168 healthy donors in a minimum of seven days and a maximum of 30 days. The polynuclear leukocytes showed little change after 24 hours; about 30 per cent showed more or less pronounced destruction of the nuclei after three days, while the neutrophilic, eosinophilic and basophilic granules were still stainable. The peroxidase reaction of the granules remained positive for several weeks. The monocytes disappeared after four to five days. The lymphocytes were most resistant and could still be identified in stored blood after several weeks.

PRESERVATION OF BLOOD WITH VARIOUS CONCENTRATIONS OF Na_2, Na_3 AND $Na_2CaEDTA$

Whole blood preserved with 0.05 to 0.5 per cent Na_2EDTA aqueous solution and stored for 42 days at 4° C. showed erythrocyte survival of 70 to 88 per cent. Blood collected in solid Na_2EDTA in concentrations of 0.25 to 1 per cent and stored for 50 days showed erythrocyte survival of 79 to 89 per cent.

The protective action of various sugars against deterioration of the erythrocytes during storage has been known for some time. Sixteen different sugars were tested for their antihemolytic activity in an attempt to increase the survival time of Na_2EDTA-preserved erythrocytes during storage. The disaccharides (melezitose, sucrose) and the trisaccharide (raffinose) retarded hemolysis for over 100 days. Raffinose was the most satisfactory, for it caused only a slight shrinkage of the erythrocytes. Five hundred cubic centimeters of whole blood pre-

served with 1.5 gm. of Na_2EDTA, 10 gm. of raffinose and 2.5 gm. of glucose in 100 cc. of isotonic saline solution and stored for 100 days showed erythrocyte survival of 96 per cent. The preservation of blood with Na_2EDTA and raffinose-glucose may provide satisfactory storage for a period of six to eight weeks.

Na_3EDTA in quantities of 2 mg. to 2.5 mg. prevented 1 cc. of blood from coagulating. The cellular elements were fairly well preserved in spite of its higher alkalinity (pH 8.5).

The fact that the $Na_2CaEDTA$ complex inhibits coagulation is of interest. It takes 30 mg. to prevent 1 cc. of blood from coagulating. Its anticoagulant effect is not due to the binding of the blood calcium, but to its ionic strength. It is easily soluble in water and isotonic saline solutions; it has a pH of about 7.5. It is a good preservative for erythrocytes in concentrations of 2 to 3 per cent.

Since $Na_2CaEDTA$ forms complexes with radioactive substances, blood preserved with it should be useful in combating radium poisoning in the event of atomic warfare.

TOXICITY OF Na_2EDTA AND $Na_2CaEDTA$

Na_2EDTA given per os is practically atoxic for animals. Rats fed maximum doses had no toxic symptoms except diarrhea. Ninety-six per cent of administered Na_2EDTA was excreted unchanged in the feces of rats fed massive single doses. The coagulation time of the blood was not altered significantly and no pathological changes in the cellular elements were noted.

Rabbits tolerated parenteral injection of as much as 80 mg. of Na_2EDTA per kilogram of body weight without toxic symptoms. When 100 mg. per kilogram was given, tetany developed but the animals recovered rapidly upon administration of calcium ion. Rabbits tolerated intravenous injection of 40 to 80 mg. per kilogram daily for ten days. It was possible to inject 2,000 mg. of Na_2EDTA per kilogram of body weight by slow intravenous infusion over a period of three hours before fatal hypocalcemic levels were reached.

The toxic dose for dogs is 50 mg. per kilogram of body weight. Dogs recovered when injected with 100 mg. of calcium gluconate. Na_2EDTA was well tolerated when injected simultaneously with 100 mg. of calcium gluconate; no changes in blood pressure, respiration or pulse rate were noted.

Na_2EDTA has been given to humans intravenously in doses up to 12 gm. over a period of two days. No toxic symptoms were noted. More than 60 per cent of it was excreted in the urine as calcium complex. The administration of the preformed $Na_2CaEDTA$ is without effect on calcium hemostasis. It is nontoxic by all routes of administration. One patient with metal poisoning was given a total of 20 gm. of $Na_2CaEDTA$ intravenously at the rate of 5 gm. a day in 500 cc. of saline solution. No toxic reactions were noted. Ninety-nine per cent of the radioactive tagged substance could be recovered from the urine after intravenous administration to rats.[6]

TRANSFUSIONS WITH Na_2EDTA GLUCOSE PRESERVED BLOOD

In 1951 the authors reported upon the first 16 transfusions of Na_2EDTA-preserved blood into humans.[10] Since then 60 more patients have been given similar transfusions. The age of the transfused blood varied from one to forty-two days. The blood was well tolerated, beneficial and without untoward symptoms. Coagulation, bleeding time, prothrombin and calcium content were not significantly changed. Sprague[15] and co-workers were the first to study the survival time of erythrocytes after transfusion of Na_2EDTA-preserved blood. They gave transfusions to eight healthy students, using Na_2EDTA-preserved blood and with ACD-preserved blood, and found the erythrocyte survival time with Na_2EDTA to be as good as with ACD solution. They indicated that (1) there was no significant difference in the initial 72-hour survival of blood collected and stored in ACD or Sequestrene Na_2EDTA dextrose solution and (2) survival was excellent with storage periods of one, ten and twenty-one days; but after twenty-eight days of storage it was definitely decreased. They transfused one lot of blood preserved with Na_2EDTA and stored for 35 days and calculated that 60 per cent of the cells surviving the initial 72-hour post-transfusion period had an apparently normal life span. Survival studies with blood stored for six weeks are contemplated.

PRESERVATION OF BLOOD WITH ETHYL ALCOHOL

Until recently alcohol has not been used for preserving whole blood. Lorant[7] and co-workers reported that they used alcohol in their experiments to preserve ACD-treated blood in liquid state below freezing. They found that the presence of 30 per cent alcohol in ACD-preserved blood permits storage of whole blood at —12° C. in the liquid state. At this temperature 20 per cent alcohol does not hemolyze erythrocytes. The spontaneous hemolysis in blood kept from freezing by alcohol-dextrose after four months of storage at —12° C. was equal to or slightly less than in blood stored at 4° C. Lorant and coworkers used rabbits for experiments to test the possibility of transfusing blood preserved with alcohol. One part of ACD-preserved rabbit blood was diluted with one part of ACD solution containing 42 per cent alcohol and stored at —12° C. After four months of storage the supernatant fluid was removed, replaced by saline solution and injected into

the rabbit from which the blood had been withdrawn. The blood was filtered before transfusion and the rabbit survived the injection. Spontaneous hemolysis of the injected blood was 6 per cent. Osmotic resistance against 0.6 per cent sodium chloride showed 78 per cent hemolysis. These investigators suggested the possibility of using alcohol for long range preservation of blood.

During the last two years experiments to preserve blood with alcohol have been carried on by the authors. The effect of alcohol on cells and tissue is due to dehydration and coagulation of the protein substances. Alcohol diluted with distilled water causes complete lysis of erythrocytes. The erythrocyte membrane is freely permeable for alcohol. To maintain the osmotic equilibrium, the alcohol must be diluted with isotonic sodium chloride solution. Saline-diluted alcohol in concentrations of 1 to 15 per cent does not hemolyze human erythrocytes at room temperature for several days, and hemolysis is much retarded at 4° C. In concentrations of 15 to 20 per cent saline diluted alcohol, hemolysis is incomplete; in 20 to 25 per cent, hemolysis is complete; above 35 per cent the erythrocytes are agglutinated.

Hemolysis by alcohol is greatly retarded by a variety of sugars. Whole blood preserved with isotonic alcohol solutions in concentrations of 1 to 20 per cent in the proportion of 1:1 with the addition of 0.15 per cent Na_2EDTA and 6 per cent glucose will retard hemolysis for about 60 days; that containing 5 per cent maltose will retard it for 67 days; that containing 12 per cent sucrose, for 120 days; and that containing raffinose, for about 130 days.*

The toxicity of alcohol is low. Thursz[16] has shown that 150 to 300 cc. of 30 per cent alcohol may be given intravenously, at a rate of 10 to 15 cc. per minute, without hemolysis or toxic symptoms. Further investigations are necessary to determine the minimum amounts of alcohol and sugar suitable for long-time preservation.

PRESERVATION OF ERYTHROCYTES BY FREEZING

Freezing would be the most ideal method for preserving whole blood, if a practical and economical method could be found to recover the erythrocytes after thawing without excessive hemolysis. Luyet's[8] fundamental observations have shown that viability is greatly facilitated at low temperatures if cells are partially dehydrated by replacing a portion of the intracellular water with one of the lower polyhydric alcohols. Smith[14] presented further evidence by reporting that whole blood in the presence of glycerin could be stored at —79° C. for periods of three months, without excessive hemolysis after thawing. Since then Mollison and Sloviter,[9] Sloviter,[13] Chaplin and Mollison,[2] Chaplin and Veal[3] and Brown and Hardin[1] have extended Smith's observations. They showed that human erythrocytes equilibrated with glycerin could be cooled to —70° C. for two hours and, although there was considerable loss by hemolysis during the processing, the remaining cells survived normally up to 60 days after transfusion. More recently it has been reported that human erythrocytes that have been stored for more than eight months at —79° C. are capable of normal survival after transfusion.

Chaplin and Mollison demonstrated that packed citrated glycerinated erythrocyte suspensions could be processed at —15° C. and after thawing had very low percentages of hemolysis. They said that 98 per cent of the cells survived after three months and predicted that 90 per cent of the cells may be intact after one year.

If —15° C. is sufficient to keep the metabolic activity of erythrocytes to a minimum it would materially lower the cost of freezing. This moderately low temperature is easily obtained with ordinary refrigeration. The difficulty with the method described is the removal of the glycerin after thawing. The cell suspension must be equilibrated in 16 per cent, 8 per cent and 4 per cent glycerin solutions before final suspension in a 1 per cent saline solution.

No attempts have been made so far to freeze blood preserved with Na_2EDTA. Whole blood preserved with Na_2EDTA can be processed at —20° C. with a low percentage of hemolysis after thawing. One volume of whole blood was mixed with one part of 3 per cent isotonic sodium lactate solution containing 40 per cent glycerin and 8 per cent raffinose. The mixture was equilibrated for one hour at 4° C. and frozen at —20° C. in an ordinary deep-freezer. After 80 days in storage the blood was thawed and the plasma showed only 5 per cent hemolysis. The cell suspension was centrifuged and the erythrocyte sediment equilibrated in isotonic sodium lactate solution containing 5 per cent glycerin and 1 per cent Na_2EDTA. After centrifuging, the supernatant glycerin solution only contained a trace of hemoglobin. The glycerin was finally removed after the cells were suspended twice in 5 per cent glucose-lactate solution. The cell suspension may be preserved without hemolysis for eight to ten days if stored at 4° C.

The above described procedure, freezing blood preserved with Na_2EDTA, is less complicated than using citrated packed erythrocytes. Equilibration with 5 per cent glycerin-Na_2EDTA lactate solution is sufficient to prevent hemolysis before the cells are suspended in glucose-lactate solution. Whether or not the Na_2EDTA-preserved frozen erythrocytes will survive for a year without considerable hemolysis, remains to be seen.

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*Since the reading of this paper, whole blood preserved with alcohol-Na_2EDTA-raffinose has been transfused in humans without untoward symptoms.

REFERENCES

1. Brown, I. W., and Hardin, H. F.: Recovery and in vivo survival of human red cells, Arch. Surg., 66:3, 1953.

2. Chaplin, H., Jr., and Mollison, P. L.: Improved storage of red cells at —20° C., Lancet, 1:215-218, Jan. 31, 1953.

3. Chaplin, H., Jr., and Veal, N.: Removal of glycerol from previously frozen red cells; a modified method, Lancet, 1:218, Jan. 31, 1953.

4. Dyckerhoff, H., Marx, R., and Ludwig, B.: Ueber den Wirkungs mechanism und die Verwendbarkeit einiger blutgerinnungs hemmender organischer Substanzes, Z. f. ges. exptl. Med., 110:412, 1943.

5. Hadley, G. G., and Larson, N. L.: Use of Sequestrene as an anticoagulant, Am. J. Clin. Path., 23:613, 1953.

6. Hart, H., and Laszlo, D.: Modification of the distribution and excretion of radioisotopes by chelating agents, Science, 118:3053, 1953.

7. Lorant, A., Lorant, G. J., Angrist, A., and Korpman, R.: Storage of blood below 0° C. in liquid state, J. Clin. Inves., 32:1005, 1953.

8. Luyet, B. G., and Gibbs, M. C.: On the mechanism of congelation and of death in the rapid freezing of epidermal plant cells, Biodynamica, 1:25, 1937.

9. Mollison, P. L., and Sloviter, H. A.: Successful transfusion of previously frozen human red cells, Lancet, 2:862, Nov. 10, 1951.

10. Proescher, F.: Anticoagulant properties of ethylene bisiminodiacetic acid, Proc. Soc. Exper. Biol. & Med., 76: 619, 1951.

11. Rous, P. and Turner, T. R.: The preservation of living red blood cells in vitro, J. Exper. Med., 23:219, 1916.

12. Schmidt, C. H., Hanes, M. E., Gomez, C. D.: A new anticoagulant for routine laboratory procedures, U. S. Armed Forces Med. J., 4:1556, 1954.

13. Sloviter, H. A.: Recovery of human red blood cells after freezing, Lancet, 1:823, April 14, 1951. Recovery of human red cells after prolonged storage at —79° C., Nature, London, 169:1013, 1952.

14. Smith A. U.: Prevention of hæmolysis during freezing and thawing of red blood cells, Lancet, 2:910-911, Dec. 30, 1950.

15. Sprague, C. C., Shapleigh, T. B., Mayes, S., Long, R., and Moore, C. V.: Posttransfusion survival of erythrocytes stored in a solution of ethylenediamine tetraacetic acid and dextrose, J. Lab. & Clin. Med., 41:84, 1953.

16. Thursz, T.: Grundlagen und Heilerfolge der intravenæsen Alkoholinfusion, Wien. Klin. Wochenschr., 43:1161, 1938.

17. Wittgenstein, A. M.: Disodium ethylenediamine tetraacetic acid, an anticoagulant for routine hematological work, Am. J. Med. Tech., 19:59, 1953.

18. Zuker, M. B.: Some effects of disodium ethylenediamine tetraacetate, Am. J. Clin. Path., 24:39, 1954.

Prevention of Infectious Hepatitis by Gamma Globulin

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• *Infectious hepatitis, a viral disease, has become increasingly more important in recent years. It is believed that the great increase in reported cases is not due entirely to better reporting, but that there has been an actual increase in the incidence of this disease. The comparatively long incubation period in infectious hepatitis, the high incidence in persons in close contact with patients who have the disease, and the fact that in most instances contact between persons is the mode of spread, makes this disease particularly suitable for the use of an immunizing agent which would be administered after exposure.*

From the studies reviewed it is apparent that gamma globulin is of value in preventing hepatitis both when administered as mass prophylaxis in an epidemic, and when given to persons in close contact with a person who has the disease. Widespread use of gamma globulin prophylactically among persons who have been in close contact with the occasional patients with infectious hepatitis seen by practicing physicians might often obviate the need for mass immunization. It should be stated that there is little evidence for the effectiveness of gamma globulin in the therapy of infectious hepatitis. In a study in which very large amounts (average dose 45 cc.) of gamma globulin were given very early in the disease, no significant difference was observed between those injected and a control group.

INTEREST IN INFECTIOUS HEPATITIS was aroused during World War II because of its importance in the military effort.[31] The work of several groups of investigators during this period implicated a filtrable virus as the etiologic agent of this disease.[4, 13, 20, 30] Evidence indicated that the virus was present in the blood during the early period of disease and that persons who recovered from the illness rarely had a second attack.[31] Hence, it was postulated that antibodies which could prevent infectious hepatitis might be present in the globulin fraction of the blood.[29] It is the purpose of this paper to review certain of the studies which indicate the usefulness of gamma globulin as a passive immunizing agent in this illness.

Although infectious hepatitis has been recognized for more than 100 years, the true incidence of the disease is not yet known. In 1952 (the first year in which it was reported nationally) 17,000 cases were recorded in the United States, and in 1953 the number exceeded 33,000 cases.[23] However, it is probable that this increase represents, in large part, better reporting. In California a similar increase in reported cases has occurred, with 317 cases in 1951, 876 in 1952, and 1,404 in 1953.[3] Even with these increases, it is thought that only a small proportion of the total cases occurring is represented. Korns[18] estimated that in New York State not over one-third of the icteric cases are reported to the health department.

It is not within the scope of this review to discuss in detail the clinical and epidemiologic aspects of infectious hepatitis. However, certain facts, because they relate to the feasibility of the use of a passive immunizing agent, seem worth emphasizing.

Jaundice in hepatitis does not occur in all cases, and the nonicteric (and frequently mild) cases may serve as a continuing link in the spread of infection. Children, particularly, often have a mild form of infection, and illness in them may not be diagnosed as infectious hepatitis. The incubation period of infectious hepatitis is longer than in most infectious diseases, the range being 10 to 40 days, with an average length of slightly less than one month.[14] This fact makes hepatitis particularly suitable for the use of an immunizing agent which would be administered after exposure.

Epidemics of infectious hepatitis have resulted from fecal contamination of water,[8, 24] possibly from contamination of milk[21] and food,[26] and from direct contact between persons.[5, 17, 19] In epidemics arising from a common source, passive immunization would be of little value in most instances, as most of the cases would have occurred before the group at risk was known. However, as will be shown later, prophylactic measures for persons in close contact with those who are infected would be desirable. In epidemics propagated by person-to-person contact, the fecal-oral route of transmission has been conclusively demonstrated in one instance,[5] and it is

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TABLE 1.—*Studies on mass prophylaxis of infectious hepatitis with gamma globulin*

Investigators	Number of individuals		Hepatitis with jaundice			
			Control		Inoculated	
	Control	Inoculated	No.	Per cent	No.	Per cent
Stokes and Neefe (29) (Summer Camps)	278	53	125	44.9	3	5.7
Gellis, et al. (9) (Army)	11,326	2,732	360	3.2	10	0.4
Havens and Paul (15) (Orphanage)	155	97	36	23.0	2	2.0
Stokes, et al. (27) (Mental institutions)	347	354	89	25.6	8	2.3

TABLE 2.—*Studies on the control of secondary cases of infectious hepatitis in families by gamma globulin*

Investigators	Number of persons exposed		Cases of hepatitis			
			Control		Inoculated	
	Control	Inoculated	No.	Per cent	No.	Per cent
Brooks, et al. (2)	114	55	18	16.0	1	2.0
Hsia, et al. (16)	95	95	13	14.0	1	1.0
Lilienfeld, et al. (19)	228	71	20	8.8	1	1.4
Ashley (1)	690	269	116	16.8	3	1.1
Korns (18)	839	588	124	14.8	10	1.7

probable that this is the mode of transmission in most contact epidemics and in endemic cases of infectious hepatitis. Recent study of two epidemics, one in a rural area[17] and one in an urban housing development,[19] showed that the risk of acquiring infection is much greater in persons in contact with a case within the home than in the population at large.

GAMMA GLOBULIN IN INFECTIOUS HEPATITIS

Following the demonstration by Enders[7] that certain fractions (gamma globulins) of pooled human plasma contained a greatly increased concentration of antibodies against a variety of bacterial and viral agents, Stokes, Maris, and Gellis[28] proved the value of gamma globulin in the prevention and attenuation of measles. In 1945, Stokes and Neefe[29] first used gamma globulin in an epidemic of infectious hepatitis in a summer camp. Fifty-three persons were inoculated with gamma globulin and 278 were not inoculated. Three cases of hepatitis occurred in the inoculated group (5.7 per cent), and 125 cases (45 per cent) occurred in the uninoculated group. Following this demonstration, several other investigators initiated controlled studies in order to determine the value of gamma globulin in epidemic areas. These are listed in Table 1. Although the environmental factors were not the same in any two of these epidemics, it is evident that in each instance a significantly lower attack rate was observed in the group receiving gamma globulin. It is of interest that most of the cases occurring in the inoculated groups had onset within one week of the time gamma globulin was given, while only a small proportion of the total cases occurring in the control groups appeared during the same time period.

In the experiments cited in the previous paragraph, gamma globulin was administered as mass prophylaxis in one part of a homogeneous population, with the remainder of the population serving as controls. Practicing physicians ordinarily are not faced with the control of an epidemic but rather with the problem of what can be done to prevent illness in persons in close contact with patients under their care. In an epidemic in an urban housing project, Lilienfeld, Bross and Sartwell[19] found that 20 cases of hepatitis with jaundice occurred among 228 household contacts who had not received gamma globulin, while only one case occurred in 71 contacts who had received gamma globulin. It is of interest that this person became ill two days after being inoculated. In two other studies[1, 18] a similarly pronounced reduction in the secondary attack rate occurred in families whose members had received gamma globulin. Although this information was obtained in retrospect and may be open to some criticism, two recent controlled studies corroborate it. Brooks, Hsia, and Gellis[2] studied the members of 46 families in each of which one person had infectious hepatitis. Gamma globulin was administered to all of the immediate members of 17 families, and to none of the persons in the remaining 29 families, who served as controls. At least one secondary case occurred in each of 14 of the control families, while only one secondary case of infectious hepatitis developed in the 17 families whose members received gamma globulin. This person became ill two days after receiving the material. In an extension of this work, Hsia, Lonsway and Gellis[16] administered gamma globulin to alternately selected members of the families of 40 cases of infectious hepatitis. The remaining uninoculated members served as controls. Infectious hepatitis developed in 13 of the 95 persons in the control group, while the disease occurred in only one of the 95 persons who received gamma globulin; that person became ill six days after the inoculation. Table 2 lists the results described above. From this discussion it would appear that persons who are in close contact with a person in the home who has hepatitis should receive gamma globulin.

DOSAGE

In the early experiments[29] gamma globulin was administered intramuscularly in a dosage of 0.15 cc. per pound of body weight. Recently, however,[16, 27] as little as 0.01 cc. per pound given intramuscularly has been found to be effective. Hsia, Lonsway and Gellis[16] said that the use of 0.005 cc. per pound was not effective in preventing infectious hepatitis. It is recommended that gamma globulin, in a dosage of 0.01 cc. per pound of body weight, be given intramuscularly, all at one time.

TOXICITY

Reactions to gamma globulin administered intramuscularly are exceedingly rare. In a study of the effect of gamma globulin on poliomyelitis,[12] more than 24,000 children were inoculated and reaction was observed in only 14 persons, urticaria being the most common. One instance of what appeared to be an immediate anaphylactic reaction has been reported.[25] In that case the patient, a child, had received gamma globulin previously. Recovery followed immediate treatment with epinephrine and Benadryl.

Although the virus of serum hepatitis may be present in the plasma pools from which gamma globulin is prepared, there is evidence that this does not constitute a hazard. The injection into 10 volunteers of gamma globulin prepared from plasma known to contain serum hepatitis virus did not produce serum hepatitis.[22]

SERUM HEPATITIS

The efficacy of gamma globulin in preventing serum hepatitis has not been established. While earlier studies[11] suggested some benefit, recent work[6] in volunteers, who received gamma globulin prepared from the blood of individuals convalescent from serum hepatitis, did not show gamma globulin to be efficacious in the prevention of this disease. In that study, gamma globulin in 2 cc. amounts was injected at the same time as the virus and again 40 days later. Hepatitis with jaundice occurred in two of four volunteers. In the earlier experiment in which gamma globulin appeared to be effective, 10 cc. amounts were administered and repeated one month later. Perhaps the differences in results observed in the two experiments were owing to the different dosages employed.

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REFERENCES

1. Ashley, A.: Gamma globulin. Effect on secondary attack rates in infectious hepatitis, N.E.J.M., 250:412, March 11, 1954.

2. Brooks, B. F., Hsia, D. Y., and Gellis, S. S.: Family outbreaks of infectious hepatitis. Prophylactic use of gamma globulin, N.E.J.M., 249:58, July 9, 1953.

3. California State Department of Public Health, Bureau of Acute Communicable Diseases. Selected morbidity data.

4. Cameron, J. D. S.: Infective hepatitis, Quart. J. Med., 12:139, July 1943.

5. Capps, R. B., and Stokes, J. Jr.: Epidemiology of infectious hepatitis and problems of prevention and control, J.A.M.A., 149:557, June 7, 1952.

6. Drake, M. E., Barondess, J. A., Bashe, W. J., Jr., Henle, G., Henle, W., Stokes, J., Jr., and Pennell, R. B.: Failure of convalescent gamma globulin to protect against homologous serum hepatitis, J.A.M.A., 152:690, June 20, 1953.

7. Enders, J. F.: Chemical, clinical and immunological studies on the products of plasma fractionation. X. The concentration of certain antibodies in globulin fractions derived from human blood plasma, J. Clin. Inves., 23:510, July 1944.

8. Gauld, R. L.: Epidemiological field studies of infectious hepatitis in Mediterranean theater of operations: Clinical syndrome, morbidity, mortality, seasonal incidence, Am. J. Hyg., 43:248, May 1946.

9. Gellis, S. S., Stokes, J. Jr., Brother, G. M., Hall, W. M., Gilmore, H. R., Beyer, E., and Morrissey, R. A.: The use of human immune serum globulin (gamma globulin) in infectious hepatitis in the Mediterranean theater of operations. I. Studies on prophylaxis in two epidemics of infectious hepatitis, J.A.M.A., 128:1062, Aug. 11, 1945.

10. Gellis, S. S., Stokes, J. Jr., Forster, H. W., Brother, G. M., and Hall, W. M.: The use of human immune serum globulin (gamma globulin) in infectious (epidemic) hepatitis in the Mediterranean theater of operations. II. Studies on treatment in an epidemic of infectious hepatitis, J.A.M.A., 128:1158, Aug. 18, 1945.

11. Grossman, E. B., Stewart, S. G., and Stokes, J. Jr.: Posttransfusion hepatitis in battle casualties and study of its prophylaxis by means of human immune serum globulin, J.A.M.A., 129:991, Dec. 8, 1945.

12. Hammon, W. McD., Coriell, L. L., Stokes, J. Jr.: Evaluation of Red Cross gamma globulin as a prophylactic agent for poliomyelitis. 2. Conduct and early follow-up of 1952 Texas and Iowa-Nebraska studies, J.A.M.A., 150:750, Oct. 25, 1952.

13. Havens, W. P., Jr.: Properties of the etiologic agent of infectious hepatitis, Proc. Soc. Exp. Biol. and Med., 58:203, March 1945.

14. Havens, W. P., Jr.: Infectious Hepatitis and Serum Hepatitis, ch. 15, pp. 359-377.
Viral and Rickettsial Infections of Man, 2d. Ed., T. M. Rivers, editor; J. B. Lippincott Co., Philadelphia, 1952.

15. Havens, W. P., Jr., and Paul, J. R.: Prevention of infectious hepatitis by gamma globulin, J.A.M.A., 129:270, Sept. 22, 1945.

16. Hsia, D. Y., Lonsway, M., and Gellis, S. S.: Gamma globulin in the prevention of infectious hepatitis. Studies on the use of small doses in family outbreaks, N.E.J.M., 250:417, March 11, 1954.

17. Knight, V., Drake, M. E., Belden, E. A., Franklin, B. J., Romer, M., and Coppen, L. O.: Characteristics of spread of infectious hepatitis in schools and households in an epidemic in a rural area, Am. J. Hyg., 59:1, Jan. 1954.

18. Korns, R. F.: Health in New York State. Infectious hepatitis, Health News, 31:17, March 1954.

19. Lilienfeld, A. M., Bross, I. D. J., and Sartwell, P. E.: Observations on an outbreak of infectious hepatitis in Baltimore during 1951, Am. J. Pub. Health, 43:1085, Sept. 1953.

20. MacCallum, F. O., and Bradley, W. H.: Transmission of infective hepatitis to human volunteers, Lancet, 2:228, Aug. 12, 1944.

21. Murphy, W. J., Petrie, L. M., and Work, S. D., Jr.: Outbreak of infectious hepatitis, apparently milk borne, Am. J. Pub. Health, 36:169, Feb. 1946.

22. Murray, R., and Ratner, F.: Safety of immune serum globulin with respect to homologous serum hepatitis, Proc. Soc. Exper. Biol. and Med., 83:554, July 1953.

23. National Office of Vital Statistics: Morbidity and Mortality, 2:2, Jan. 11, 1954.

24. Neefe, J. R., and Stokes, J. Jr.: An epidemic of infectious hepatitis apparently due to a water-borne agent: Epidemiologic observations and transmission experiments in human volunteers, J.A.M.A., 128:1063, Aug. 11, 1945.

25. Owings, W. V. B.: Hypersensitivity to gamma globulin. A case report, J. Med. Assn. Alabama, 23:74, Sept. 1953.

26. Reed, M. R., Bancroft, H., Doull, J. A., and Parker, R. F.: Infectious hepatitis—presumably food-borne outbreak, Am. J. Pub. Health, 36:367, April 1946.

27. Stokes, J. Jr., Farquhar, J. A., Drake, M. E., Capps, R. B., Ward, C. S., Jr., and Mills, O.: The evaluation of the length of protection provided by immune serum globulin (gamma globulin) during epidemics, J.A.M.A., 147:714, Oct. 20, 1951.

28. Stokes, J., Jr., Maris, E. P., and Gellis, S. S.: Chemical, clinical and immunological studies on the products of blood fractionation. XI. The use of concentrated normal human serum gamma globulin (human immune serum globulin) in the prophylaxis and treatment of measles, J. Clin. Invest., 23:531, July 1944.

29. Stokes, J., Jr., and Neefe, J. R.: The prevention and attenuation of infectious hepatitis by gamma globulin, J.A.M.A., 127:144, Jan. 20, 1945.

30. Voegt, H.: Zur Aetiologie der Hepatitis epidemica, Munchen med. Wchnschr., 89:76, 1942.

31. Witts, L. J.: Some problems of infectious hepatitis, Brit. Med. J., 1:739, June 3, 1944.

Infectious Hepatitis

Report of an Outbreak of 24 Cases

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• In an epidemic of 24 cases of infectious hepatitis in a small lumbering community, the majority of cases occurred in children. Sixteen of them were pupils in one school. The school apparently was the focus for the spread of infection, which is thought to have been through contact between persons. Five multiple case households with eight secondary cases were observed. With one exception, gamma globulin was not used for the prophylaxis of infectious hepatitis in families in which one member had the disease.

THE PRESENT COMMUNICATION, an epidemiologic case report, describes a common pattern of occurrence of infectious hepatitis and cites an instance in which the prophylactic use of gamma globulin would have been desirable.

Because of a report of several cases of infectious hepatitis in Village "A," an investigation was undertaken by state and local health departments June 1 and 2, 1954. Village "A" is a community of approximately 500 persons situated in a rural area of Northern California. A lumber mill is located in the town and lumbering is the main industry. There are no physicians in Village "A" and medical care is obtained in Village "B," approximately 20 miles away.

Occurrence of Cases

Criteria for the diagnosis of infectious hepatitis were a characteristic history of illness accompanied by jaundice.

The first case of infectious hepatitis consistent with these criteria occurred in a 6-year-old girl (first grade pupil) in whom onset was on February 5, 1954. The patient's family had moved to Village "A" only 11 days before. There was no history of contact with a case of hepatitis in the patient's previous home in another state. The second case occurred on March 13 in a 6-year-old classmate of the girl in whom the disease was noted first. Four weeks later a third case occurred in a child in the same classroom and from that time up to the time this report was written (July 1954) at least one case occurred each week and there were 24 cases in all, 13 in males and 11 in females. The peak week of the epidemic was the week ended May 15 (Chart 1). During that week six

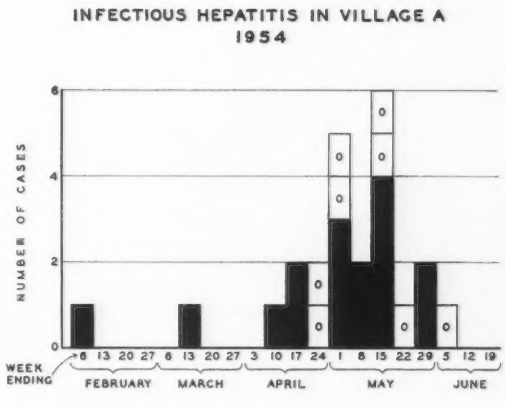

Chart 1

cases of infectious hepatitis occurred. There were no deaths.

The occurrence of cases in various age groups was:

Age Group	No. of Cases
0- 4	2
5- 9	9
10-14	7
15-19	1
20-24	1
25-29	2
30 and over	2
Total	24

Sixteen of the 24 persons ill were students in the Village "A" elementary school, which includes kindergarten through the eighth grade in a four-room, fairly new building. The various grades and rooms with the number of cases in each grade and room and the attack rate by room were as follows:

Room	Grades	No. Pupils	No. Cases	Rate Per Cent
1	Kindergarten	17	1	20.0
	First	23	7	
	Second	14	1	
2	Third	6	0	8.6
	Fourth	15	2	
3	Fifth	18	0	6.5
	Sixth	13	2	
4	Seventh	11	2	12.0
	Eighth	14	1	
	Total	131	16	12.2

It is evident that the highest incidence occurred in the first grade, which is the class in which the patient with the first case was enrolled.

Multiple Case Households

In five households more than one case occurred—13 in all. The interval between the onset of the initial and subsequent cases in each household was more than two weeks in all instances. It is felt that the eight subsequent cases can be considered as instances of secondary infection within the household.

Means of Spread

The first-grade pupil who had the first case almost certainly acquired the infection in the previous place of residence from which she had but recently come. Both the second and the third cases, each occurring approximately one incubation period from the preceding case, occurred in classmates of the first patient. The spread of infection thenceforward was less clear. The water supply in the village is obtained from private wells and it would appear unlikely that water could be the source of infection except in the school. It is possible that intermittent contamination of the school water supply could have occurred and this could be the source of infection in the school children. However, it is felt that the spread of infection in this outbreak can best be explained as having been due to contact between persons and not as being due to a common source. Every case can be related either directly or indirectly to the school and it is thought that this was the focus of infection.

Prophylaxis in Family Contacts

Gamma globulin was administered to the other members of the family of a patient in only one instance in the outbreak and it was necessary for that family to travel some distance to receive the immunization. Although gamma globulin was available in Village "B," the physicians there did not use it. Available evidence[1] suggests that the use of gamma globulin in household contacts of cases might have prevented the appearance of at least some of the eight secondary cases that occurred in familial groups.

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REFERENCE

1. Leftwich, C. I.: Prevention of infectious hepatitis by gamma globulin, Cal. Med., 81:226-229, Sept. 1954.

Diagnosis and Treatment of Glaucoma

A Review of Recent Developments

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• Tonography is helpful in the diagnosis of doubtful cases of chronic simple glaucoma. It also gives a good indication of the status of the disease in a given eye.

The most useful miotic in the treatment of glaucoma is still pilocarpine. Carbachol is more potent but must be used in an anhydrous base ointment or in a solution of a wetting agent. DFP (diisopropyl fluorophosphate) produces undesirable side effects because of the hyperreactivity of the ciliary body and iris sphincter which it causes. These can be partly overcome by using pilocarpine first. Diamox is a carbonic anhydrase inhibitor that is effective when given orally. In many cases it produces at least a temporary lowering of tension in glaucomatous eyes, apparently by reducing the secretion of intraocular fluid. Its ultimate value in glaucoma remains to be seen.

The cyclodiathermy operation which has been modified somewhat by Weekers has had a recent increase in use but the long-term results have been somewhat disappointing.

The importance of early operation in narrow angle glaucoma is becoming more and more apparent. Following iridectomy the wound should be tightly sutured to insure the prompt reformation of the anterior chamber.

PROBABLY the most important development of help in the diagnosis of glaucoma in the past several years is Grant's tonography.[4] It has contributed a great deal to the understanding of the mechanism of the various types of glaucoma and will undoubtedly contribute still more.

Tonography is a method of measuring the resistance of the eye to the outflow of intraocular fluid. It also measures indirectly the rate of production of aqueous. The test is simple to do and consists in measuring the drop in ocular tension that occurs when an electronic tonometer is allowed to rest on the eye for four or five minutes. From the measurement obtained the loss in volume of the eye is calculated and the result is expressed as the facility of aqueous outflow in cubic millimeters of aqueous per minute per millimeter (mercury) of increase in intraocular pressure that is produced by the tonometer. An electric tonometer is required because the difficulty of holding an ordinary tonometer steady for the time of the test and because the meter is more easily read than the dial of the regular tonometer. Also the electronic tonometer may be connected to a recording galvanometer so that continuous recordings may be made of the tension. If a galvanometer is not used, readings are taken every 30 seconds and the average reduction in tension calculated.

The average facility of aqueous outflow for normal eyes is about 0.22* with a range of 0.10 to 0.5. For eyes with chronic open angle glaucoma the average is about 0.10 with a spread of 0.01 to 0.15. Thus there is an overlapping zone of 0.10 to 0.15 that includes the lower range of normal and also early chronic glaucoma. Even so, however, the results of tonography may be of great assistance in confirming the diagnosis in doubtful cases. It is also valuable for following the progress of glaucoma during treatment with miotics and after operation. It is perhaps a better indication of the status of the disease in an eye than is the tension.

Of other provocative tests for the diagnosis of chronic open angle glaucoma the one which has stood the test of time best is the water drinking test.† Recent articles have confirmed this and have shown that other tests such as the lability test and the caffeine test are uncertain.

There are a number of subjects that should be included in a discussion of the treatment of glaucoma. Swan[7] recently reviewed the rationale for the proper use of the miotics. Pilocarpine is still the most useful drug for the treatment of glaucoma of chronic type because it is stable in aqueous solutions, it penetrates the cornea consistently and it seldom causes allergic reactions. It acts by directly stimulating the smooth muscle cells of the iris

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*Cubic mm. of aqueous per minute per mm. of mercury increased intraocular pressure.

†The patient drinks 1000 cc. of water within 5 minutes after having had tension measured. The tension is then measured three or four times at 20-minute intervals. A rise of 6 mm. of mercury or more is considered "positive." The patient should have no food or liquids for 5 hours before the test.

sphincter and ciliary body. Thus the reactivity of the muscles to nervous stimuli is reduced and the annoying symptoms of ciliary spasm are much milder than after the use of cholinesterase-inhibiting miotics such as eserine or diisopropyl fluorophosphate (DFP). As it is possible to get the full effect from pilocarpine in a 3 or 4 per cent solution, stronger solutions are unnecessary.

Carbachol is much more potent than pilocarpine but is so hydrophilic that it will not penetrate the corneal epithelium from an aqueous solution. It must be given in an anhydrous base ointment or in a solution of a wetting agent such as Zephiran. Gentle massage of the cornea, through the lids, enhances absorption. However, if the epithelium be damaged either by tonometry or topical anesthesia alone, enough carbachol may be absorbed to cause severe generalized reactions including abrupt fall in blood pressure.

Eserine and DFP act by inhibiting cholinesterase so that the acetylcholine produced by nervous stimulation can have a prolonged action on the muscle cells. The resulting hyperreactivity of the muscles causes painful spasms of the iris and ciliary body. These symptoms may be reduced by administering pilocarpine before using DFP. The reactivity of the muscles is reduced by the pilocarpine so that DFP is tolerated better. The pilocarpine can then be gradually reduced.

DFP is very unstable in the presence of water and this has made its use in weaker concentrations such as 0.01 per cent somewhat uncertain. If the bottle is left open in a moist atmosphere or if the dropper is permitted to touch the lids during instillation, the resulting contamination causes a rapid loss of potency of the drug.

DFP is definitely contraindicated in narrow angle glaucoma. Numerous cases of acute attacks of glaucoma induced by DFP have been reported. Its best place is in the treatment of aphakic glaucoma where ciliary spasm is not annoying and the angle is wide.

CARBONIC ANHYDRASE INHIBITORS

Perhaps the most promising development of the last few years in the treatment of glaucoma is the use of carbonic anhydrase inhibitors. The first of these is acetazoleamide (Diamox) on which Becker[2] recently reported. Carbonic anhydrase was discovered in the blood in 1932. It is an enzyme that catalyzes the reversible reaction of water plus carbon dioxide to give carbonic acid. In 1940 the sulfonamides were found to be inhibitors of carbonic anhydrase. In 1950 Diamox, which is one of the sulfonamides, was brought out. It has been used since that time by internists as a diuretic. It produces diuresis by interfering with the reabsorption of bicarbonate by the renal tubules and the bicarbonate that passes out of the kidney carries with it a certain amount of water. Besides the diuretic effect, the loss of bicarbonate tends to bring about acidosis.

Since Kinsey[6] found a great excess of bicarbonate in the posterior chamber of the rabbit eye, it was felt that carbonic anhydrase might play a role in the secretion of the aqueous. Therefore a substance that inhibits the action of carbonic anhydrase might be expected to cut down the production of aqueous and lower the intraocular pressure.

Diamox is given by mouth and relatively little toxic effect has been noted even when it was given for long periods of time in congestive heart failure. It has been found to lower the tension in a high percentage of normal as well as glaucomatous eyes. It had some effect in all but two or three per cent of a total of about 250 cases reported upon at the Wilmer Resident's Meeting at Johns Hopkins. Whereas it is best given in single doses every day or two when it is used as a diuretic, it has been found to be more effective on the eye when it is administered in divided doses several times a day. The maximum recommended dose for this purpose is 250 mg. every four hours. Diabetes and kidney disease are contraindications. In some patients it takes as long as three days for the tension-lowering effect of Diamox to take place. Ammonium chloride has been given to patients who have not responded to Diamox alone and this has increased the action of Diamox, apparently by lowering the pH of the blood and producing mild acidosis. Leopold observed that giving sodium chloride at the rate of 2 gm. per day reduced the action of Diamox. The reason for this has not been explained. Lederle Laboratories recently brought out sodium Diamox, which can be given intravenously. The drug is more effective intravenously than when it is given orally, and injection may be found useful in treating patients with acute glaucoma who, because of nausea and vomiting, are unable to retain oral doses of the drug.

The action of Diamox is apparently not the result of diuresis that it brings about, for the ocular tension abates before diuresis occurs. Tonographic measurements made during the administration of Diamox have shown no change in the facility of aqueous outflow. Diamox has also been found effective in lowering the pressure when the angle of the anterior chamber was completely closed with peripheral anterior synechias. This would suggest that the decreased tension is the result of inhibition of the rate of inflow of the aqueous. This was measured recently, using Goldmann's method, and it was found that the aqueous inflow was reduced by as much as two-thirds. Friedenwald gave ascorbic acid, an activator of carbonic anhydrase, to rabbits before administering Diamox. The effect of Diamox on the intraocular pressure was appreciably diminished by the ascorbic acid, which is evidence that the tension-

lowering effect of Diamox is apparently the result directly of its inhibition of carbonic anhydrase.

Many other carbonic anhydrase inhibitors are available, some more potent than Diamox. A search is under way for one that may be effective topically. As yet none has been found.

Complications that have occurred during the administration of Diamox include numbness and tingling of the extremities, headache, dizziness, nausea and insomnia. Some of these may have been coincidental, but all disappeared promptly when the drug was discontinued or the dosage reduced. Although Diamox is a sulfonamide, no cases of agranulocytosis or aplastic anemia have been observed. The possible effect of this drug on the bone marrow must be kept in mind, however. Ocular complications have included one case of optic neuritis and one case of retinal hemorrhages following five months of administration. Since the retina normally contains carbonic anhydrase, this may turn out to be a complication to watch for.

In considering other possibilities of complications, it might be conjectured that prolonged reduction of the inflow of aqueous would interfere with the nutrition of the lens and perhaps hasten the formation of cataracts. Also the stagnation of the through-and-through flow of aqueous might conceivably increase the blockage of the trabeculum or the aqueous veins or whatever it is that causes the increased resistance to outflow that is presumably the cause of primary open angle glaucoma.

The present status of Diamox would seem to be that of a useful adjunct in acute cases before operation. It also seems to be helpful in getting patients past relatively short-lived attacks secondary to trauma or inflammation. Whether it will be feasible in the long-term treatment of chronic simple glaucoma remains to be seen.

ADVANCES IN SURGICAL TREATMENT

As to the surgical treatment of glaucoma, the operation that has received the most attention recently is cyclodiathermy. A modification of technique by Weekers[8] brought about a revival of interest in the procedure. The old method consisted of making perhaps 50 or 60 applications of diathermy three or four millimeters back of the limbus. Each application lasted one to two seconds. The results were not as encouraging as was hoped and many ophthalmologists abandoned the operation. In Weekers' technique, the applications are fewer, longer (10 to 15 seconds) and placed farther back (six or seven millimeters). Many promising reports have been published, and some investigators have gone so far as to recommend the operation for glaucoma of all types and stages, almost to the exclusion of other surgical methods. Others have not had such good results. At the Stanford glaucoma clinic, use of the operation in early chronic primary or secondary glaucoma has not been very successful. The author certainly would not think of using this operation for early iris block glaucoma where iridectomy has not been done and believes that it should be restricted to cases of advanced glaucoma in which other therapeutic measures have failed, and perhaps to glaucoma following occlusion of the central retinal vein or diabetic rubeosis where other operations are contraindicated.

There is apparently a narrow margin of safety between the amount of diathermy required to produce permanent normalizing of the tension and that which will cause hypotony or even phthisis. In most of the cases observed by the author the tension has returned to its original level within two or three months despite repeated operations.

The surgical treatment of narrow angle or iris block glaucoma has been the subject of considerable discussion. Not long ago Barkan[1] again emphasized the importance of early operation with peripheral iridectomy done with a tightly closed incision. This procedure, he said, insures prompt reformation of the anterior chamber and prevents development of peripheral anterior synechias. In this he agrees with Haas[5] and Chandler.[3] For cases in which peripheral anterior synechia already is present, Barkan advised cyclodialysis combined with iridectomy, whereas the procedure preferred by most workers in cases of this kind is iridencleisis. The latter operation has certain definite disadvantages in iris block glaucoma. The tendency for delayed reformation of the anterior chamber may cause more adhesions to develop in the angle. Also a malignant course may be more likely to follow. The optical results of iridencleisis are seldom perfect. It would seem that every effort should be made to cure iris block glaucoma with peripheral iridectomy alone. There is no question about the early cases or cases in which operation is done in the interval between attacks. In somewhat more advanced cases where the tension has been elevated for three or four days or perhaps as long as a week, iridectomy may be done and the wound sutured. Air may then be injected into the anterior chamber under considerable pressure, which results in backward displacement of the iris and lens. This maneuver may succeed in breaking peripheral anterior synechias if they are not too well established. Most of the air must then be permitted to escape. The one patient on whom the author used this procedure was cured of an attack of acute iris block glaucoma lasting three days with a tension in the eighties. It was the third such attack, the tension having been normal between attacks. The patient needed no miotics in a six-month period of occasional observation after operation.

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REFERENCES

1. Barkan, O.: Iridectomy in narrow angle glaucoma, Am. J. Ophth., 37:504, April 1954.
2. Becker, B.: Diamox in glaucoma, Am. J. Ophth., 37: 13, Jan. 1954.
3. Chandler, P.: Narrow angle glaucoma, Arch. Ophth., 47:695, June 1952.
4. Grant, W. M.: Tonographic method for measuring the facility and rate of aqueous flow in human eyes, Arch. Ophth., 44:204, Aug. 1950.
5. Haas, J., and Scheie, H. G.: Peripheral iridectomy in narrow angle glaucoma, Tr. Am. Acad. Ophth., 56:589, Aug. 1952.
6. Kinsey, V. E.: Comparative chemistry of aqueous humor in posterior and anterior chambers of rabbit eye, Arch. Ophth., 50:401, Oct. 1953.
7. Swan, K. C.: Miotic therapy of chronic glaucoma—changing trends, Arch. Ophth., 49:419, April 1953.
8. Weekers, L., and Weekers, R.: Mode d'action des operations antiglaucomateuses, specialement de la diathermesation du corps ciliare, Ophthalmologica, 104:1, July 1942.

C.M.A. Placement Service

ONE OF THE SERVICES of the California Medical Association to physicians and the general community is the Placement Service. This operates to get physicians and opportunities together, to find a location for the inquiring physician and to secure a doctor for the community that needs one.

At present there are 45 opportunities listed, 35 of them for general practitioners. On the other side, there are more than 1,400 physicians listed, who have asked for copies of the C.M.A. placement list. Their names come from licensing authorities, from the military forces when reserve medical officers are discharged and from numerous other sources.

Community requests for physicians are checked with the county medical societies and every effort is made to secure factual information on any area seeking additional medical services. Such checking is effective in weeding out requests that come from, say, a property owner who has space to rent or sell but who is unfamiliar with the medical needs of his community. Personal interviews are held when possible and about 400 letters a month go out to applicants.

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CASE REPORTS

- **Development of Porphyria During Chloroquine Therapy for Chronic Discoid Lupus Erythematosus**
- **Spontaneous Hematoma in the Rectus Abdominis Muscle**

Development of Porphyria During Chloroquine Therapy for Chronic Discoid Lupus Erythematosus

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PORPHYRIA and the metabolism of porphyrins have been objects of interest for many years despite the rarity of the disease. This interest has resulted in investigative endeavor which has constantly added to the knowledge of the subject and dispelled much of the confusion in the concepts and terminology of earlier investigators. There is not, however, unanimity of opinion as to a system of classification and the etiologic delineation of the disease remains obscure. Most authorities[1, 8, 15] do agree that in order for porphyria to develop a patient must have an overt or latent inborn error of metabolism.

There are three main types of porphyrins that are significant in the understanding of porphyria: uroporphyrin, coproporphyrin and protoporphyrin. A related compound, porphobilinogen, is also excreted in some cases. These porphyrins have in common a basic cyclic structure, the porphyrin nucleus, and differ only in the attached side chains.[11] The porphyrin nucleus is also a fundamental component of many other important chemical structures including hemoglobin, the cellular respiratory enzymes and the chlorophyll molecule.[8] The physiologic role of uroporphyrin and coproporphyrin is not definitely known, but there is evidence that they are the precursors of protoporphyrin which is combined with iron and protein to form hemoglobin.[14]

Porphyria has been classified by Waldenstrom[13] into three main varieties: congenital, acute intermittent and cutanea tarda. The congenital type is rare and has its onset in early childhood. The cutaneous lesions occur on exposed surfaces and are characterized by bullae and eventual scarring. The skin lesions are thought to be due to the photosensitivity possessed by these patients. Other findings include red teeth, red bones and hypertrichosis. The rather constant presence of anemia and splenomegaly and the large amounts of uroporphyrin in the immature erythrocytes led Lowry and co-workers[7] to classify this variety as porphyria erythropoietica.

Acute intermittent porphyria begins later in life, usually in the second to fourth decades. Onset is sudden and the symptoms consist of abdominal colic, obstipation, transient increase in blood pressure and neurologic and psychic disturbances. Spontaneous remissions in acute porphyria are the rule, but recurrences are common and the disease is frequently fatal.

The usual onset of porphyria cutanea tarda, or chronic porphyria, is characterized by a bullous eruption on the exposed skin of adults. This is thought to occur in response to light, heat or minor trauma.[3] Photosensitivity is not as prominent in the cutanea tarda variety as it is in congenital porphyria and trauma is usually a necessary precipitating factor.[17] The patients usually have a dusky complexion, hypertrichosis and hyperpigmentation. There is frequently evidence of hepatic dysfunction. The cutanea tarda form of porphyria is distinguishable from the acute form by the presence of skin lesions and the absence of abdominal or neurologic manifestations.

There is an increased excretion of a uro-type porphyrin in all the varieties of porphyria. The excretion of large amounts of uroporphyrin is considered to be so important that the diagnosis of porphyria cannot be established without this finding. Porphyrinuria, on the other hand, alludes to the excretion of increased quantities of porphyrins of any type, usually coproporphyrin. The excretion of coproporphyrin occurs in many unrelated diseases and its significance is unknown. These two terms, porphyria and porphyrinuria, must be clearly differentiated.

The excretion of porphyrins has been studied in many skin diseases. Lupus erythematosus has been one of the most frequently investigated. Brunsting in 1939[2] reported seven cases of lupus erythematosus of all varieties. Increased coproporphyrin excretion occurred in only one of the cases, that of a patient with discoid lupus erythematosus. There were no

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instances of uroporphyrinuria. Zeligman[16] in 1946 reported elevated urinary coproporphyrin excretion in eight of 34 patients with the discoid variety and in all of four patients with acute disseminated lupus erythematosus. Porphyrinuria in these latter four cases was attributed to low-grade hyperpyrexia. Zeligman found no excretion of uroporphyrin in any of the above patients or in 88 other patients with miscellaneous diseases of the skin.

So far as could be determined there is no report of the occurrence of porphyria in a case of lupus erythematosus with the classic urinary findings including the presence of large quantities of uroporphyrin. Schoch,[10] in a recent review article on the cutaneous manifestations of porphyria, said that lupus erythematosus has been reported in association with porphyria. However, the authorities[4, 6] cited by Schoch said only that porphyrins were excreted in lupus erythematosus. They did not mention the type of porphyrins and therefore no conclusions can be drawn as to the possible presence of porphyria.

The purpose of the present communication is to present a case report of a patient with chronic discoid lupus erythematosus of six years' duration who had an episode typical of acute intermittent porphyria while receiving chloroquine therapy.

REPORT OF A CASE

A 48-year-old Negro man was admitted to the hospital July 16, 1953, with complaint of chills, fever, vomiting, abdominal pain and "blood in the urine" of one day's duration. Upon physical examination the patient appeared to be acutely ill. The temperature was 100.2° F. The blood pressure was 130/80 mm. of mercury. Scattered over the face, chest, arms and scalp were discrete, atrophic, pigmented and depigmented plaques varying in size from 8 to 25 mm. in diameter. Some of them were erythematous and scaling; others appeared to be old scars. Pronounced tenderness in the right upper quadrant of the abdomen, without muscular rigidity, was noted. No organs or masses were palpable and the bowel sounds were normal.

The hemoglobin content was 13.8 gm. per 100 cc. of blood. Leukocytes numbered 20,100 per cu. mm. —91 per cent polymorphonuclear cells. The urine was burgundy red in color and contained a moderate amount of albumin. It fluoresced brightly under a Wood's light. Spectroscopic examination of the urine, acidified with an equal part of 25 per cent hydrochloric acid, revealed an absorption maximum at 552 millimicrons. This indicated the presence of a uroporphyrin.[11]

Past history. The patient was hospitalized for "pellagra" at the age of 14. He did not recall clearly any of the symptoms of that time.

He had a positive reaction to a serological test for syphilis in 1943 upon entry into the Army and he was treated with weekly injections of arsenic and bismuth for three months. The results of serologic tests after that varied from negative to slightly positive. Cerebrospinal fluid examinations were performed in 1944 and again in 1950. They were normal on both occasions. The result of a treponemal immobilization test (TPI) performed in February 1954 was positive. The patient received 4.2 million units of penicillin in 1949 for an intercurrent infection.

TABLE 1.—*Urinary porphyrin excretion of patient and relatives*

Date	Coproporphyrins (micrograms) Per 100 cc.	Coproporphyrins (micrograms) Per 24 hrs.	Uroporphyrins (micrograms) Per 100 cc.	Uroporphyrins (micrograms) Per 24 hrs.
Normal:		10-120		5-20
July 16, 1953	1.43		13.8	
July 18, 1953	1.12		16.0	
July 20, 1953	0.82		10.5	
July 24, 1953	2.30	37.8	6.0	91.0
July 25, 1953	0.42	8.8	8.9	187.0
July 30, 1953	0.68	12.8	3.0	57.0
Aug. 5, 1953	1.23		6.3	
Aug. 11, 1953	0.56	12.9	1.6	37.5
Nov. 24, 1953		0		0
Son	0.32		0	
Sister	0.06		0	
Brother	0.45		0	

The patient was first observed in the Dermatology Clinic of the Veterans Administration Hospital in May 1947, at which time he complained of several areas of alopecia on the scalp and one in the left eyebrow of three months' duration. The clinical impression was chronic discoid lupus erythematosus and this was confirmed by several biopsies. During the following six years the patient received most forms of therapy advocated for chronic discoid lupus erythematosus, including bismuth, gold, cortisone, testosterone, alpha tocopherol, liver extract and local therapy with carbon dioxide, phenol and hydrocortisone ointment. Despite these measures there was slow progression of the dermatosis, with new lesions appearing on the trunk, arms, hands, face and scalp. Bullae were not observed at any time.

The patient had many subjective complaints from time to time, most of them referable to arthralgia and tenderness in the skin lesions. No evidence suggestive of disseminated lupus erythematosus ever was noted in pertinent laboratory studies. Approximately one month before admission, roentgenograms revealed a possible duodenal ulcer, for which the patient was given Donnatal. Five days before admission, chloroquine, 0.5 gm. daily, was given for the discoid lupus erythematosus.

Course in the hospital. All previous medications were discontinued upon admittance to hospital. The acute symptoms disappeared two days after admission and did not recur. The leukocyte content decreased to 9,000 per cu. mm. of blood the day following admission and results of all further laboratory examinations were within normal limits except for the presence of porphyrins in the urine. Data on urinary excretion of porphyrins by the patient (and, for controls, by members of his family) are summarized in Table 1. The patient was discharged from the hospital January 13, 1954, and thereafter worked regularly as a truck driver.

DISCUSSION

The diagnosis and classification of the disease in the case herein reported was puzzling until all the clinical features were evaluated. An adult with chronic scarring dermatosis who begins to excrete uroporphyrin would normally be considered to have porphyria of the cutanea tarda type, and this diagnosis was seriously entertained. However, it is believed that in the present case there were two diseases — chronic discoid lupus erythematosus and acute porphyria. The cutaneous lesions were typical clinically and histologically of chronic discoid lupus erythematosus. They occurred on other than exposed areas and were not produced by trauma or light, unlike the findings in porphyria cutanea tarda. There were no bullae noted during the six years this patient had been under observation. Similarly, there was no abnormal melanosis or hypertrichosis as is seen in patients with porphyria cutanea tarda.

The clinical features and laboratory data were also not those of porphyria cutanea tarda. There was sudden onset of systemic manifestations and early spontaneous remission. Uroporphyrin excretion occurred only during the acute episode and then was absent for a period of more than eight months during which the patient was under observation. Chronic hepatic damage, a regular finding in porphyria cutanea tarda, was not demonstrable.

Analysis for the various porpyhrins did not help to differentiate the specific type of porphyria. Porphyria cutanea tarda and acute intermittent porphyria are generally characterized by the excretion of uroporphyrin and a zinc porphyrin complex.[11] Classically, porphobilinogen is also regularly found in acute intermittent porphyria, but it has been reported in porphyria cutanea tarda.[3] In the present case uroporphyrin and the zinc porphyrin complex were excreted, but not porphobilinogen. Brunsting[3] stated that it is not possible to separate the clinical classes of porphyria on the basis of the laboratory studies of the urine and feces alone.

The occurrence of porphyria during the administration of a drug has been reported previously.[9, 15] In such instances it was concluded that the drug precipitated clinical manifestations of a latent inborn error in metabolism. There is increasing experimental evidence, however, that porphyria can be produced by a drug, *per se*. The excretion of uroporphyrin and syndromes closely resembling the two major types of porphyria have been produced in animals by the administration of Sedormid, phenylhydrazine and lead and ultraviolet light.[9, 12] Granting that in the majority of cases involving drugs, reported to date, the condition was owing to inborn errors of metabolism, it must be considered in the light of this recent evidence that porphyria can be produced in persons who have no such constitutional predisposition. The recognition of persons of this kind is therefore of more than academic interest because such reactions may be amenable to therapy, as are other drug reactions, and are of more favorable prognosis. In the patient reported upon herein there was no history or clinical evidence of any preexisting porphyria. It must, therefore, be considered that a drug was the etiologic agent in this patient.

The drugs he was taking at the onset of the attack of porphyria were Donnatal and chloroquine. The former is a combination of phenobarbital and the alkaloids of belladonna. Although porphyria following the .ngestion of barbiturates has been reported,[3] it is not felt that the phenobarbital precipitated the attack in this patient because he had had phenobarbital on several occasions during the preceding years, had been taking the drug for one month before the onset of the attack, and took the drug after the attack with no untoward reaction. The most likely causative agent, therefore, would be the chloroquine that the patient received for just five days before the onset of the attack. Chloroquine is generally innocuous. The usual toxic symptoms are pruritus and mild gastrointestinal disturbances,[5] and there have been no previously reported instances of porphyria following administration of the drug. However, the timeliness of onset of porphyria makes it possible that chloroquine was of etiologic significance. Chloroquine was not readministered because of the possibility of severe consequences.

There appears to be no significant relationship between porphyria and lupus erythematosus. As was mentioned previously, there have been no recorded cases in which the two diseases occurred in one patient. The fact that the two diseases occurred simultaneously in this patient is merely coincidental and no common etiologic mechanism is evident.

SUMMARY

A case of acute porphyria in a patient with chronic discoid lupus erythematosus is reported. This is believed to be the first instance in which the two diseases occurred in the same patient. The possibility of drugs as causative agents in porphyria is pointed out and the role of a drug, chloroquine, in this case is discussed.

REFERENCES

1. Blum, H.: Photodynamic Action and Diseases Caused by Light, Reinhold Publishing Corp., New York City, 1941.

2. Brunsting, L. A., Brugsch, J. T., and O'Leary, P. A.: Quantitative investigation of porphyrin metabolism and diseases of the skin, Arch. Dermat. & Syph., 39:294, 1939.

3. Brunsting, L. A., Mason, H. L., and Aldrich, R. A.: Adult form of chronic porphyria with cutaneous manifestations; report of 17 additional cases, J.A.M.A., 146:1207, 1951.

4. Cornbleet, T.: Discussion of Dillaha, C. J., and Hicklin, W.: Experimental therapy of chronic porphyria with Vitamin B_{12}, J. Inves. Dermat., 19:489, 1952.

5. Findley, G. M.: Recent Advances in Chemotherapy, Vol. II, The Blakiston Co., Philadelphia, 1951, p. 291.

6. Gomez Orbaneja, J., and Castro-Mendoza, H. J.: Dermatosen und porphyrie, Dermatologica, 94:327, 1947.

7. Lowry, P. T., Schmid, R., Hawkinson, V. E., Schwartz, S., and Watson, C. J.: Porphyria: clinical manifestations in relation to chemical findings, Bull. Univ. Minn. Hosp., 27:97, 1950.

8. Rimington, C.: Haems and porphyrins in health and disease, Acta Medica Scand., 143:161, 1952.

9. Schmid, R., and Schwartz, S.: Experimental porphyria, III. Hepatic type produced by sedormid, Proc. Soc. Exper. Biol. & Med., 81:685, 1952.

10. Schoch, E. P., Jr.: Porphyrin metabolism and the cutaneous manifestations of porphyria, a review, Texas State J. Med., 49:688, 1953.

11. Schwartz, S.: Clinical aspects of porphyrin metabolism, Veterans Administration Tech. Bull. 10:94, 1953.

12. Schwartz, S., Keprios, M., and Schmid, R.: Experimental porphyria, II. Type produced by lead, phenylhydrazine and light, Proc. Soc. Exp. Biol. & Med., 79:463, 1952.

13. Waldenstrom, J.: Studien über porphyrie, Acta Med. Scand., Sup. 82, page 1, 1937.

14. Watson, C. J.: Some recent studies of porphyrin metabolism and porphyria, Lancet, 240:539, 1951.

15. Watson, C. J., and Larsen, A. E.: The porphyrins and their relation to disease: Porphyria, The Oxford Medicine, Vol. IV, part 2, p. 228. Oxford Univ. Press, New York, 1949.

16. Zeligman, I.: Urinary excretion of porphyrins in dermatoses, Arch. Dermat. & Syph., 54:281, 1946.

17. Zeligman, I., and Baum, M.: Porphyric bullous dermatosis, Arch. Dermat. & Syph., 58:357, 1948.

Spontaneous Hematoma in the Rectus Abdominis Muscle

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HEMATOMA of the rectus abdominis muscle is a definite clinical entity with more or less constant basic symptoms and physical features. It was accurately described by the ancient Greek physicians and since then has been mentioned periodically. The so-called "spontaneous" hematoma is not a rare occurrence but is sufficiently uncommon that most practitioners will not see a case during an entire career.

The condition is of interest, clinically, because it may closely simulate acute intra-abdominal disease. It is due to a rupture of the fibers of the rectus abdominis muscle or a tear in one of the epigastric vessels with hemorrhage into the sheath of the rectus muscle. It is usually unilateral and below the level of the umbilicus. Since the epigastric vessels are on the dorsal surface of the rectus muscle, bleeding occurs between the muscle and the posterior sheath above the fold of Douglas and between the muscle and the peritoneum below the fold. Brodel,[2] discussing the anatomic reason for this, noted that the lower one-third of the muscle is the most powerful portion and that greater changes in length occur there. Also, extramuscular branches of vessels are longer in the lower one-third to compensate for the excessive change in length.

Although the cause is often unknown, the condition tends to occur in the following three groups:

1. Persons with normal muscles. Here hemorrhage is due to muscular effort such as sudden violent movement, cough or sneeze.

2. Persons with disease or inanition of the muscles—particularly those with pendulous abdomens as in pregnant multiparous women.

3. Persons with advanced diseases of the blood vessels.

Wohlgemuth[7] collected reports of 127 cases prior to 1923. Of these, 107 were of traumatic origin; they occurred mostly in young males who were soldiers or athletes.

Teske[6] reviewed reports of 100 cases in the literature and himself reported a case. He noted the incidence was three times as great in men as in women. The etiologic factors in the cases he reviewed were as follows: Idiopathic, 53; associated with pregnancy, 22; traumatic, 19; associated with disease, 6. Ages of patients ranged from 17 to 83 years with the average 46.8 years. Pain was a symptom in 97 cases, mass in 78, tenderness in 71, rigidity in 49, nausea in 23 and vomiting in 15. In nearly all cases in which results of examination of the blood was reported there was an increase in leukocyte content. Platelet count, bleeding time and coagulation time were (in all cases in which reported) within normal limits.

Treatment consists of making an incision directly over the mass, evacuating the clot and ligating the bleeding vessels. If the hematoma has not extended through the peritoneum into the abdominal cavity and there is no indication for the exploration of abdominal viscera, the peritoneal cavity need not be opened. If the wound is clean and dry, closure may be done without drainage; but if there is much oozing of blood from the torn ends of muscle tissue, as is frequently the case, it is best to drain the wound. Prognosis is generally favorable.

In a survey by the authors of the literature on the subject only one case was found in which a blood dyscrasia was known to exist. It is for this reason alone that the following case is reported.

REPORT OF A CASE

The patient, a 26-year-old white man, was seen the evening of December 10, 1953, with complaint of abdominal pain of eleven hours' duration. He stated that as he was sitting in a truck eating lunch a mild constant pain developed and he noticed a tender mass in the right suprapubic area. He had no nausea or vomiting. A normal bowel movement occurred after the onset of the pain but the character of the pain was not changed. The pain and swelling increased gradually during the following six hours and then remained constant. The pain was made worse by lying down and was eased by sitting. There was no history of recent strain such as lifting, coughing or sneezing. There was no history of bleeding in the patient or his family.

Upon physical examination it was noted that there was a well healed incision just below the angle of the left scapula. Located to the right of the mid-line and extending from the pubis to just below the umbilicus was a fusiform, tender mass about 4 cm. in width at its inferior pole and widening to about 8 cm. at the upper pole. There was no other area of

tenderness. Rebound tenderness was not elicited. Peristaltic sounds seemed to be normal. There appeared to be some slight hyper-resonance over the entire colon. No impulse was felt over the mass with cough or strain. Results of urinalysis and blood examination were within normal limits.

The patient was taken to the operating room where under a spinal anesthetic the right rectus sheath was opened. A hematoma completely filled the sheath. No active source of bleeding was observed. The hematoma was evacuated and the wound was closed with a drain in place. Postoperative recovery was uneventful. In an attempt to find the cause of the seemingly spontaneous bleeding, studies were made of the blood. Prothrombin time and platelet content were normal. Bleeding and clotting times were normal. However, there was no clot retraction at the end of 24 hours. Coagulation time by the Lee-White method was 35 minutes. On subsequent test there was complete clot retraction after 18 hours. Results of a prothrombin consumption test and a clot retraction measurement were both abnormal. The patient was told he probably had latent hemophilia and was warned of the possibility of pathologic bleeding.

SUMMARY

A brief discussion of hematomas of the rectus abdominis muscle is presented along with a report of one case in which an abnormal clotting mechanism would seem to play an important role.

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REFERENCES

1. Black, B. M., and Stalker, L. K.: Spontaneous hemorrhage into the sheath of the rectus abdominis muscle, Proc. Staff Meet. Mayo Clinic, 15:206-208, Mar. 27, 1940.

2. Brodel, M.: Lesions of the rectus abdominis muscle simulating an acute intra-abdominal condition, Bull. Johns Hopkins Hosp., 61:295-315, Nov. 1937.

3. Hutchinson, W. B.: Hemorrhage in the rectus abdominis muscle simulating appendicitis, N.W. Med., 42:16-17, Jan. 1943.

4. Morton, P. C.: Spontaneous rupture of the deep epigastric vein, J.A.M.A., 99:1943, 1932.

5. Payne, R. L.: Spontaneous rupture of the superior and inferior epigastric arteries within the rectus abdominis sheath, Ann. Surg., 108:757-768, Oct. 9, 1938.

6. Teske, J. M.: Hematoma of the rectus abdominis muscle, Am. J. Surg., 71:689-695, May 1946.

7. Wohlgemuth, K.: Uber die subcutane rupture des musculus rectus abdominis und der arteria epigastrica; spontane Bauchdeckenhamatome, Arch. f. klin. Chir., 122:649, 1923.

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EDITORIAL

Multiphasic Surveys: "Streamlined Diagnosis" for the Public

THE DISTINGUISHED PRESIDENT of the American Hospital Association urged in 1952 that rapid "belt line" diagnostic service should be provided for the public, aided by availability of this service in prepayment plans.[1] The Council on Medical Service of the American Medical Association made a study of multiple screening programs, the results of which were summarized in the *Journal* for November 14, 1953 (153:1042). Multiple or multiphasic screening was defined as the use of two or more simple laboratory tests, examinations or procedures, applied rapidly and on a mass basis to determine presumptive evidence of unrecognized or incipient disease or defect. In other words, a preliminary step in diagnosis. The results of a series of multiple screening surveys were tabulated and showed that, in examinations involving over half a million people, approximately five per cent were found to have "serious disease." However, when efforts were made to do something about this disease, it was found that the screenee did not take action in from 1 to 50 per cent of cases. In other words, in as many as half of the cases of "serious disease" the person notified elected to take no action.

The motivation to pay attention to physicians' advice arises from many sources, notably interest in the welfare of one's dependents and fear of developing certain disease. It is well known that unless the individual himself takes active steps in the direction of seeking medical service, he is not likely to follow medical advice, especially while feeling comparatively well. This lack of successful follow-up naturally defeats the entire purpose of the survey, which is not (as many appear to think) an end in itself but rather a preliminary step in diagnosis which, if positive, should lead to effective action in connection with the prevention or cure of disease.

What is the yield of significant disease in the multiphasic surveys to date? The summary by the Council on Medical Service of the A.M.A. indicated "five per cent of serious disease."

A multiphasic screening survey was conducted in Los Angeles in February 1954.[2] It was offered to the 1000 employees of the Hoffman Radio and the Leach Relay corporations. Eight hundred sixty-two employees elected to accept it. The following "tests" were performed:

Chest x-ray
Height and weight "tests"
Near and far vision tests
Blood pressure determination
Blood examination for anemia and diabetes
Electrocardiogram on selected persons

Two hundred seventy-three persons were found to have some abnormality of weight or vision. These persons were urged to see their physician; apparently 72 did so.

One hundred ninety-four persons were found to have some abnormality other than the above. One hundred twenty-one of them apparently went to their physician or to some health agency.

Persons with x-ray films suspicious for tuberculosis were referred to their local health department.

Table 1 is a summary of the screening tests. Practicing physicians may judge for themselves the probable value (or shortcomings) of the criteria given.

In terms of specific entities, the following show the yield in recent general surveys:

1. *Tuberculosis.* Previously unknown cases of active pulmonary tuberculosis: 36 per 100,000 persons examined (Scarcello[3]). Drolet and Lowell found that only about 10 per cent of new registered cases of active tuberculosis are detected by means of survey procedures.[4]

2. *Heart disease.* Previously unknown cases of heart disease: 57 per 100,000 persons examined (Selzer[5]).

3. *Bronchogenic carcinoma.* Previously unknown cases of bronchogenic carcinoma: 8 per 100,000

TABLE 1.—*Screening tests, test methods, and screening levels*

Screening Test	Method	Screening Level
Height and weight	Height and weight taken with shoes on and coat off	20 per cent or more under or over midpoint of ideal weight range for medium frame. (Metropolitan Life Insurance Co. table.)
Vision	20/40 line of projected chart for distant vision; No. 4 type of Jaeger chart at 16 inches; with glasses if used	Inability to read 20/40 line of J-4 type with either eye
Chest x-ray	Miniature photofluorograph, 70 mm.	Abnormal shadows: films double read
Electrocardiogram	3-lead electrocardiogram	Cardiologist's reading
Blood pressure	Patient seated; mercury sphygmomanometer	Pressure greater than 150 mm. systolic or 95 mm. diastolic
Hemoglobin	Specific gravity determination of whole blood by copper sulfate method	Hemoglobin value less than 11 gm. per cent for women; 12 gm. per cent for men
Blood sugar	Wilderson-Heftmann method using capillary blood drawn 50-70 min. after ingestion of 50 gm. sucrose (in the form of lemonade)	Blood glucose over 160 mg. per cent

persons examined (Scamman[6]). Unfortunately on follow-up of these silent and potentially early carcinomas, it was found that they were resectable in less than half the cases and that fewer than half of the patients in the resectable group survived three years.

Periodic examination, when accompanied by positive action on the part of the patient, may be very helpful. However, when not accompanied by intelligent action, it may have the following disadvantages:

1. If the report is negative, the person acquires a false sense of security; while disease may not be evident at the time of survey, it can develop a few weeks or months later, but the person is inclined to pay little heed to symptoms and delays going to his physician because "he was well at the survey."

2. It may and demonstrably does cause undue apprehension in persons with "false positive" diagnosis. This is noteworthy in connection with transient glycosuria or hypertension, small pulmonary inflammatory processes or benign tumors, and so forth.

3. It can result in considerable expense to those who are reported as having findings suggestive of disease, but in whom disease is not confirmed on regular examination.

4. Most multiphasic screening techniques leave no opportunity for appraisal of the "negative" group by a physician; yet in this group will be persons who need medical attention. (For example, persons with normal x-ray film of the chest but with active tracheobronchial tuberculosis or many forms of heart disease.)

Public health agencies attempt to protect the community against communicable diseases. Many welfare agencies attempt to secure funds for research so that specific diseases may be prevented or conquered. Diseases of high communicability are recognized public health problems, but diseases of noncommunicable nature are the province of regular practice and are undoubtedly most effectively cared for by personal physicians.

Smiley[7] defined multiphasic screening as "inferior medicine, short-cut medicine and poor public health." Haven Emerson[8] echoed that belief in his discussion on medical care and public health services. It would seem from the experience to date that multiphasic screening, while superficially appealing, is, in fact, a poor way of improving the public health. Further, it is an extremely expensive way for the public if all of the costs are listed.[9] It gives the semblance of scientific accuracy on a mass basis, but yields little in concrete improvement for most of the persons concerned. It is a mechanized, impersonal and incomplete service.

Despite these critical appraisals by experts, some welfare groups and labor organizations in California continue to promote multiphasic campaigns among employee groups. Health and welfare funds are being used to defray part of the costs involved. It is therefore desirable that members of the medical profession be fully informed as to the apparent value of these types of medical screening procedures. If it can be shown that they have had some lasting educational benefit, then the surveys now being completed will not have been altogether in vain.

1. Medical Economics, July 1952.

2. Report on a pilot multiphasic screening survey, Los Angeles, February 1954, Institute of Industrial Relations, Univ. of Calif., Los Angeles 24.

3. Scarcello, N.: Worcester chest x-ray survey, J.A.M.A., 152:960, July 4, 1953.

4. Drolet, G. J., and Lowell, A. M.: Whither tuberculosis? Dis. Chest, 21:527, 1952.

5. Selzer, A.: Heart disease in mass surveys, Amer. Heart J., Sept. 1951.

6. Scamman, N.: Results of mass surveys in Boston, N.E.J.M., April 1951.

7. Smiley, W. G.: Address to Southern Tuberculosis Association, quoted by Emerson, *loc. cit.*

8. Emerson, H.: Medical care and public health services, Calif. Med., 11:213, 1952.

9. Getting, V. A., and Lombard, H. L.: The evaluation of pilot clinics—mass screening, N.E.J.M., 247:460, 1952.

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NOTICES & REPORTS

Executive Committee Minutes

Tentative Draft: Minutes of the 344th Meeting of the Executive Committee, San Francisco, July 10, 1954.

The meeting was called to order by Chairman Heron in Room 212 of the St. Francis Hotel, San Francisco, at 3:00 p.m., Saturday, July 10, 1954.

Roll Call:

Present were President Morrison, President-Elect Shipman, Council Chairman Lum, Auditing Committee Chairman Heron and ex-officio, Editor Wilbur.

Absent for cause, Speaker Charnock and, ex-officio, Secretary Daniels.

A quorum present and acting.

Present by invitation during all or a part of the meeting were Messrs. Hunton, Clancy and Thomas of C.M.A. staff; legal counsel Hassard; K. L. Hamman of California Physicians' Service; Rollen Waterson, health insurance consultant; Dr. Francis J. Cox and Dr. Hollis L. Carey.

1. *Committee on Adoptions:*

Discussion was held on appointments to a Committee on Adoptions, referred by the Council. On motion duly made and seconded, it was voted to appoint Dr. Dan O. Kilroy of Sacramento, chairman, and Drs. George K. Herzog, Jr., of San Francisco and Donald G. Tollefson of Los Angeles as members.

2. *Committee on Public Relations:*

On motion duly made and seconded, it was voted to notify the chairman of the Committee on Public Relations of the opinion of the Council that a study be made of all public relations expenditures of the Association and of California Physicians' Service.

3. *Organization Expense:*

The committee was advised of the receipt of a statement for $3,000 plus odd expenses for additional legal services in the case now pending before the State Supreme Court. Funds for this statement had previously been authorized by Council action.

4. *Committee on Blue Cross-Blue Shield:*

In accordance with the Council's referral, it was agreed to notify the three Blue Shield and Blue Cross plans in California of the Council's decision that a joint committee on coordination be maintained following the discharge of an earlier committee.

5. *Committee on Industrial Accident Commission:*

Dr. Francis J. Cox, chairman of the Committee on Industrial Accident Commission, reported that on July 9 the Industrial Accident Commission had approved a fee schedule, to be effective October 1, 1954, granting an estimated 15.1 per cent increase over present fees.

6. *California Physicians' Service Fees:*

Dr. Cox, as chairman of the subcommittee on fees of the Medical Services Commission asked (1) whether the Association or C.P.S. had the ultimate authority to formulate a C.P.S. schedule, and (2) who has the ultimate authority to allocate the division of fees with relation to the funds available.

On motion duly made and seconded, it was voted to approve the following statement:

"The Executive Committee of the California Medical Association reaffirms the action of the House of Delegates, taken in 1946, in stating 'that the Board of Trustees of California Physicians' Service revise the fee schedule biennially, this revision to be made upon the recommendation of a committee appointed by the Council of the California Medical Association.' The Fee Schedule Committee of the Medical Services Commission at present serves this purpose and reports its actions to the Commission and, through it, to the Council for transmittal to the Board of Trustees of California Physicians' Service. The Board of Trustees of California Physicians' Service has final authority in adopting a fee schedule."

7. *Public Relations:*

A request from the San Francisco Medical Society for the allocation of $50 monthly for nine months, to permit sending the county bulletin to medical students in the area, was presented and discussed. On motion duly made and seconded, it was voted to consider this a local project which should be handled with local funds.

8. *Health Insurance Consultant:*

Rollen Waterson presented a report, including several recommendations, and suggested that an 11 per cent increase in the present recommended C.P.S. fee schedule be approved as an interim step prior to adoption of a new fee schedule to serve in cases of members' incomes of between $4,200 and $6,000 annually.

Mr. Hamman stated that if two income ceilings could be operated simultaneously, an increase of 30 to 35 per cent in fees could probably be accomplished for the higher income ceiling group.

On motion duly made and seconded, it was voted to approve a series of recommendations, as follows: (1) That the temporary interim fee schedule be returned to the Medical Services Commission with new instructions; (2) that, in addition to fee increases now proposed, there be sufficient further increases of other fees to raise the estimated total payment to physicians to 11 per cent; (3) that a separate and more satisfactory schedule be promptly drawn up—independent of the $4,200 schedule—for the long-range $6,000 income ceiling formula; and (4) that C.P.S. and Rollen Waterson be requested to design the long-range $6,000 income ceiling plan and to submit it to the C.M.A. Executive Committee at the earliest possible date.

The motion adopting these recommendations called for a recognition of the urgency of carrying out these proposals.

Mr. Waterson presented a budget for his activties through the month of August, which, with some revisions, was approved.

9. *Committee on Malpractice Insurance:*

On motion duly made and seconded it was voted to appoint the following members to the Special Committee on Malpractice Insurance created by the Council at its meeting of May 12, 1954 (Item 28): Joseph F. Sadusk, Jr., M.D., Oakland; David O. Harrington, M.D., San Francisco; Wilbur Bailey, M.D., Los Angeles; William F. Quinn, M.D., Los Angeles; J. J. O'Hara, M.D., San Diego; Verne G. Ghormley, M.D., Fresno; Albert Currlin, M.D., Milpitas; Bernard Silber, M.D., Redwood City; Paul Frame, Jr., M.D., Sacramento; John Wood, M.D., Anaheim; Carl M. Hadley, M.D., San Bernardino; Denver D. Roos, M.D., Corona; John Ellis, M.D., Taft; H. I. Burtness, M.D., Santa Barbara; J. J. Heffernan, M.D., Stockton.

It was further voted to appoint Dr. Sadusk chairman, and Dr. Harrington secretary, of this committee; and to appoint Drs. Sadusk, Bailey, Harrington, Ghormley and O'Hara as the Executive Committee of the Special Committee on Malpractice Insurance.

10. *California Tuberculosis & Health Association:*

Dr. Shipman presented a request from the California Tuberculosis & Health Association for naming an Association representative to become a member of a committee on protective budgets for tuberculosis patients. On motion duly made and seconded, it was voted to approve such an appointment, Dr. Shipman to suggest the appointee.

11. *State Department of Public Health:*

On motion duly made and seconded, it was voted to accept with regret the resignation of Dr. John W. Green as a member of a committee to meet with the State Department of Public Health in discussions relative to recognizing specialists from other groups in the handling of crippled children's cases.

On motion duly made and seconded, it was voted to appoint Dr. Robert C. Martin of San Francisco to succeed Dr. Green.

On motion duly made and seconded, it was voted to refer to the Committee on Public Health and Public Agencies a request from the State Department of Public Health for appointment of one obstetrician and one pediatrician to consider the question of greater utilization of maternity beds in hospitals.

12. *Medical Services Commission:*

On motion duly made and seconded, it was voted to refer to the Council, by mail vote, a request of the Medical Services Commission for the Association to pay for the printing and distribution of Usual Fee survey forms to the county societies, when the cost of such printing is known.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 7:30 p.m.

IVAN C. HERON, M.D., *Chairman*
DONALD D. LUM, M.D., *Acting Secretary*

Annual Meeting

SAN FRANCISCO

May 1-5, 1955

Papers for Presentation

If you have a paper that you would like to have considered for presentation, it should be submitted *to the appropriate section secretary* (see list on this page) not later than November 20, 1954.

Scientific Exhibits

Space is available for scientific exhibits. If you would like to present an exhibit, please write immediately to the office of the California Medical Association, 450 Sutter Street, San Francisco 8, for application forms. To be given consideration by the Committee on Scientific Work, the forms, completely filled out, must be in the office of the California Medical Association not later than December 1, 1954. (No exhibit shown in 1954, and no individual who had an exhibit at the 1954 session, will be eligible until 1956.

Medical Motion Pictures

Applications are now being received for the program of the Medical Motion Pictures Section. Please submit your application to Arthur E. Smith, M.D., Chairman, Medical Motion Pictures Section, 1930 Wilshire Boulevard, Los Angeles 57, California.

SCIENTIFIC PAPERS
SCIENTIFIC EXHIBITS
MEDICAL MOTION PICTURES
PLANNING MAKES PERFECT
AN EARLY START HELPS

SECRETARIES OF SCIENTIFIC SECTIONS

ALLERGY . . . . . **Ben C. Eisenberg**
2680 Saturn Avenue, Huntington Park

ANESTHESIOLOGY . . . . . **John P. Howard**
2558 4th Avenue, San Diego 3

DERMATOLOGY AND SYPHILOLOGY . **R. Raymond Allington**
3115 Webster Street, Oakland 9

EYE, EAR, NOSE AND THROAT—

ENT . . . . . **Francis A. Sooy (Chairman)**
490 Post Street, San Francisco 2

EYE . . . . . **Robert N. Shaffer**
490 Post Street, San Francisco 2

GENERAL MEDICINE . . . . . **Roger O. Egeberg**
Wadsworth General Hospital, Los Angeles

GENERAL PRACTICE . . . . **Stanley R. Parkinson**
326 G Street, Marysville

GENERAL SURGERY . . . . **Lyman A. Brewer, III**
2010 Wilshire Boulevard, Los Angeles 57

INDUSTRIAL MEDICINE AND SURGERY . . **Homer S. Elmquist (Asst. Secretary)**
629 S. Westlake, Los Angeles 57

OBSTETRICS AND GYNECOLOGY . . . **George Judd**
2010 Wilshire Boulevard, Los Angeles 57

PATHOLOGY AND BACTERIOLOGY . . **Orlyn B. Pratt**
312 North Boyle Avenue, Los Angeles 33

PEDIATRICS . . . . . **Milo B. Brooks**
1015 Gayley Avenue, Los Angeles 24

PSYCHIATRY AND NEUROLOGY . . . **Knox H. Finley**
450 Sutter Street, San Francisco 8

PUBLIC HEALTH . . . . . **E. M. Bingham**
130 South American, Stockton

RADIOLOGY . . . . . **Merrell A. Sisson**
450 Sutter Street, San Francisco 8

UROLOGY . . . . . **Wilson Stegeman**
1166 Montgomery Drive, Santa Rosa

In Memoriam

COMFORT, HAROLD W. Died in Fortuna, June 17, 1954, aged 60, of coronary artery disease. Graduate of the University of California Medical School, Berkeley-San Francisco, 1925. Licensed in California in 1925. Doctor Comfort was a member of the Humboldt County Medical Society.

✤

DIALON, ISMAR. Died in Los Angeles, July 3, 1954, aged 57, of coronary artery disease. Graduate of Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1923. Licensed in California in 1940. Doctor Dialon was a member of the Los Angeles County Medical Association.

✤

FILIPELLO, EUGENE A. Died in San Jose, July 12, 1954, aged 85. Graduate of Regia Universitá di Torino Facoltá di Medicina e Chirurgia, Italy, 1894. Licensed in California in 1895. Doctor Filipello was a retired member of the Santa Clara County Medical Society, the California Medical Association, and an associate member of the American Medical Association.

✤

HOPKIRK, CLARENCE C. Died in Santa Monica, July 10, 1954, aged 69. Graduate of Northwestern University Medical School, Chicago, Illinois, 1910. Licensed in California in 1925. Doctor Hopkirk was a retired member of the Los Angeles County Medical Association, and the California Medical Association, and an associate member of the American Medical Association.

✤

JENKINS, HARRY L. Died in Arcata, July 7, 1954, aged 57. Graduate of the University of California Medical School, Berkeley-San Francisco, 1925. Licensed in California in 1925. Doctor Jenkins was a member of the Humboldt County Medical Society.

✤

KIRWIN, JOSEPH J. Died in San Diego, July 4, 1954, aged 53, of cerebral hemorrhage. Graduate of Creighton University School of Medicine, Omaha, Nebraska, 1927. Licensed in California in 1927. Doctor Kirwin was a member of the San Diego County Medical Society.

✤

LELAND, JOHN T. Died in Mill Valley, July 20, 1954, aged 80. Graduate of The Hahnemann Medical College and Hospital, Chicago, Illinois, 1899. Licensed in California in 1942. Doctor Leland was a retired member of the Marin County Medical Society, and the California Medical Association, and an associate member of the American Medical Association.

✤

LOEWENBERG, RICHARD D. L. Died in Bakersfield, April 29, 1954, aged 55, of cerebral hemorrhage. Graduate of Hamburgische Universität Medizinische Fakultät, Hamburg, Germany, 1923. Licensed in California in 1938. Doctor Loewenberg was a member of the Kern County Medical Society.

METZNER, ABRAHAM. Died in Los Angeles, July 6, 1954, aged 68, of chronic artery disease. Graduate of the Cleveland-Pulte Medical College, Ohio, 1912. Licensed in California in 1922. Doctor Metzner was a member of the Los Angeles County Medical Association.

✤

MUSSELMAN, WENDELL H. Died in Burlingame, August 7, 1954, aged 54. Graduate of the University of California Medical School, Berkeley-San Francisco, 1927. Licensed in California in 1928. Doctor Musselman was a member of the San Mateo County Medical Society.

✤

OLSEN, XENOPHON. Died in San Bernardino, July 13, 1954, aged 82. Graduate of the University Medical College of Kansas City, Missouri, 1900. Licensed in California in 1927. Doctor Olsen was a retired member of the San Bernardino County Medical Society, the California Medical Association, and an associate member of the American Medical Association.

✤

PIPER, HARRY E. Died in Santa Cruz, July 24, 1954, aged 77. Graduate of the University of California Medical School, Berkeley-San Francisco, 1902. Licensed in California in 1902. Doctor Piper was a member of the Santa Cruz County Medical Society.

✤

PORTIS, SIDNEY ALEXANDER. Died in Baltimore, Maryland, May 24, 1954, aged 59, of hepatitis. Graduate of Rush Medical College, Chicago, Illinois, 1919. Licensed in California in 1949. Doctor Portis was a member of the Los Angeles County Medical Association.

✤

ROSENBLATT, JOSEPH. Died in Kerrville, Texas, July 23, 1954, aged 70, of disease of the kidney. Graduate of Long Island College of Medicine, Brooklyn, New York, 1915. Licensed in California in 1935. Doctor Rosenblatt was a member of the Los Angeles County Medical Association.

✤

SCHWARZ, JACOB. Died in San Francisco, July 20, 1954, aged 71. Graduate of the University of California Medical School, Berkeley-San Francisco, 1904. Licensed in California in 1904. Doctor Schwarz was a member of the San Francisco Medical Society.

✤

WALKER, JAMES D. Died in Los Angeles, July 15, 1954, aged 73. Graduate of the University of Minnesota Medical School, Minneapolis, 1909. Licensed in California in 1922. Doctor Walker was a member of the Los Angeles County Medical Association.

✤

WILLIAMS, CARL G. Died in Brentwood, July 7, 1954, aged 57, of coronary artery disease. Graduate of the College of Medical Evangelists, Loma Linda-Los Angeles, 1923. Licensed in California in 1923. Doctor Williams was a member of the Los Angeles County Medical Association.

WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

TELEPATHY, PERHAPS?

In my inaugural remarks on May 11, I urged our Auxiliary members to adopt as their theme song "Accentuate the Positive, Eliminate the Negative, and Latch on to the Affirmative." In the May 29 issue of the *Journal of the American Medical Association*, the monthly message from President Edward J. McCormick, M.D., stated, "The time has come for us to embark on a campaign to 'Accentuate the Positive.'"

In everything we say and do, we try to "Accentuate the Positive"—to stress what's *right* with the medical profession. Collectively and individually, our Auxiliary members help to mould public opinion through our contacts with other individuals and other organizations. We are *not* "just another Woman's Club"—we are a service group, working closely with our A.M.A., C.M.A. and the component county medical societies in their program for the advancement of medicine and public health.

THEY ACCENTUATE THE POSITIVE

The Kern County Auxiliary, with 99 members, pledged a total of $8,000 to the Hospital Building Fund which will provide a 103-bed hospital and repairs to the earthquake-damaged Mercy Hospital. Six thousand dollars of this pledge has already been paid. The Kern members also sponsor two student nurses, giving each girl a scholarship totaling $450 for the three-year training course.

All of our counties participate in nurse recruitment, and during the coming months we'll tell you what each group is doing to stimulate interest in nursing as a career for the young women in their communities.

HAPPINESS FOR THE OLD FOLKS

Gifts are not limited to money—our Auxiliary members give of their time and their talents, too, to make life happier for those who are less fortunate. In San Francisco, 56 Auxiliary members worked for three days last Christmas, filling stockings and decorating the wards and halls at Laguna Honda, a home for convalescent and aged patients. They also supplied and cut out felt for toy animals which the patients finished and sold for spending money. The Auxiliary also provided new curtains and cushions for the woman's day room at the Home.

DIVIDENDS FROM DISCARDS

Many a doctor has lost his favorite old fishing-hat to that popular fund-raiser, the rummage sale. The Solano County Auxiliary hit an all-time high at their rummage sale last year, netting $1,265. Proceeds went to the children's ward at the Napa State Hospital, Marshal Porter School for Retarded Children, Campfire Camperships, and to other local philanthropic projects.

HEALTH EDUCATION FOR THE PUBLIC

Typical of the projects in health education sponsored by our county auxiliaries were the three programs presented by the Alameda County Auxiliary. Their annual Open Meeting featured a panel discussion on "The Median Fee Survey" with Mr. Rollen Waterson as moderator and a group of physicians as participants. At a second program, speakers from various professions presented a panel for the Oakland Public School Vocation Day, with the Auxiliary president discussing the field of nursing. A third project was that of scheduling speakers from the county Heart Association for interested groups in the East Bay.

WE WORK WITH OUR ADVISORY BOARD

As you read about our many projects and activities, you might find it reassuring to know that we do not adopt any policy or engage in any new activity without previous approval of our Advisory Board, nor do we speak on behalf of the medical profession without their sanction.

On the state level, our advisors are Arlo A. Morrison, M.D., president of the C.M.A.; Sidney J. Shipman, M.D., president-elect; Albert C. Daniels, M.D., secretary; Matthew N. Hosmer, M.D., of San Francisco, and John E. Vaughan, M.D., of Bakersfield. Mr. Robert L. Thomas, assistant executive secretary of the California Medical Association, serves as liaison officer between our Auxiliary and the Advisory Board.

Most of the county medical societies have advisory boards for their Auxiliaries; where there is no such board, approval for our activities is given by the board of directors of the medical society.

MRS. FREDERICK J. MILLER, *President*

NEWS & NOTES

NATIONAL • STATE • COUNTY

LOS ANGELES

Appointment of **Mr. Jerry Pettis,** formerly associate director of public relations of the California Medical Association, to the newly created position of executive assistant to the president of the Los Angeles County Medical Association, was announced last month. The appointment was a part of a program for strengthening the public relations of the county society. Before serving the C.M.A., Mr. Pettis was assistant to the president of United Air Lines.

* * *

The Society of Graduate Internists of Los Angeles County Hospital will hold a **Symposium of Internal Medicine,** November 12-14. Meetings will be held at the Ambassador Hotel November 12 and 13 and at the Los Angeles County General Hospital November 14. In addition there will be a dinner at Ciro's, Saturday evening, November 13.

The symposium will be made up of talks, informal group discussions, panels and patient presentations. The speakers will be: Dr. Max Wintrobe, professor of medicine, University of Utah; Dr. Chester Keefer, director of Evans Memorial Hospital, Boston; Dr. C. J. Watson, professor of medicine, University of Minnesota; and Dr. William Sodeman, professor of medicine, University of Missouri.

* * *

The Los Angeles County Heart Association will hold its 24th annual Professional **Symposium on Heart Disease** October 13 and 14 at the Wilshire Ebell Theatre, Los Angeles. Among the speakers will be Dr. E. P. Sharpey-Schafer of St. Thomas Hospital Medical School, London; Sir Russell Brock, London; Dr. Viking Olof Bjork, Stockholm; Dr. Manuel René Malinow, Buenos Aires; Dr. F. H. Smirk, University of Otago Medical School, New Zealand; and Dr. Charles T. Dotter, head of the department of radiology, University of Oregon.

* * *

The Southern California Psychiatric Society will present a program on "Community Needs and Contributions Related to Preventive Psychiatry," Friday, October 1, at the Institute of Aeronautical Sciences, 7660 Beverly Boulevard, Los Angeles. The meeting, which will start at 8:00 p.m., will be a panel discussion.

* * *

The Council of the **Los Angeles County Medical Association** has appointed Dr. Joseph M. de los Reyes as vice-president of the association to fill the unexpired term of Dr. Clair Cosgrove, who died June 29. Dr. de los Reyes has been a member of the council since 1945 and chairman of the indoctrination committee since 1946.

NAPA

The Industrial Fair held last month in Napa featured an exhibit, **"Cancer Quacks Kill."** Sponsored by the Napa County Medical Society, the county health department and the local division of the National Cancer Society, the highly popular exhibit acquainted people with the activities of quacks in cancer treatment and pointed up positive measures of sponsoring agencies in combating such activities. Some 20 local physicians, aided by representatives of the Food and Drugs Division of the California Department of Public Health, were on hand throughout the week-long event to explain the various confiscated devices, drugs and cancer "cures." Dr. Edward R. Pinckney, county health officer, was in charge of the exhibit where the American Medical Association pamphlets, "Quack" and "Why Wait?," were distributed.

SAN DIEGO

A symposium on heart disease sponsored by the San Diego County Heart Association will be held Friday, October 15, at the U. S. Naval Hospital in Balboa Park, San Diego. Among guest speakers will be Sir Russell Brock and Dr. E. P. Sharpey-Schafer of London, Dr. Hurley Motley of Los Angeles and Dr. Julius Jensen of Las Vegas, Nevada.

SAN FRANCISCO

Dr. Otto Barkan was chosen as the recipient this year of the Prize in Ophthalmology given annually by the Section on Ophthalmology of the American Medical Association. The executive committee of the section selected Dr. Barkan because of his work on glaucoma, particularly for devising and perfecting the goniotomy operation for congenital glaucoma. Dr. Arthur Bedell, a former prize winner, was chosen to bestow the prize winner's medal upon Dr. Barkan.

* * *

The 25th Annual Postgraduate **Symposium on Heart Disease** of the San Francisco Heart Association will be held October 6, 7 and 8 at Larkin Hall in San Francisco. Cooperating in the presentation are the heart associations of Alameda, Marin, Monterey, San Mateo, Santa Clara and Sonoma counties.

The program follows:

WEDNESDAY MORNING, OCTOBER 6—9:00 A.M.-12:00 M.

Electrocardiography and Roentgenology in Cardiac Diagnosis

Presiding: David A. Rytand, M.D.

9:00-10:30 a.m.—Electrocardiographic-Roentgenologic Pathologic Conference.

Moderator: David A. Rytand, M.D.

Participants: Pedro Cossio, M.D., Charles T. Dotter, M.D., Manuel René Malinow, M.D., F. Horace Smirk, M.D., F.R.C.P.

10:30-10:45 a.m.—Recess.

10:45-11:20 a.m.—Angiocardiography in Acquired Cardiac Disease—Charles T. Dotter, M.D. Discussion by Herbert L. Abrams, M.D.

11:20-12:00 m.—Electrocardiography in Acquired Cardiac Disease—Pedro Cossio, M.D. Discussion by Robert L. Smith, Jr., M.D.

WEDNESDAY AFTERNOON, OCTOBER 6—1:30-5:00 P.M.

Detection and Treatment of Cardiac Disease in Childhood

Presiding: Edward Campion, M.D.
President, Northern California Pediatric Society

1:30-2:30 p.m.—Rheumatic Fever, a Global Disease; Current Trends in Two Hemispheres, with Reference to Diagnosis, Incidence, and Treatment.

Moderator: Lowell A. Rantz, M.D.

Participants: Manuel René Malinow, M.D., Helen Pryor, M.D., F. Horace Smirk, M.D., F.R.C.P., Harold H. Rosenblum, M.D.

2:30-3:15 p.m.—Angiocardiography in Congenital Heart Disease—Charles T. Dotter, M.D. Discussion by Earl Miller, M.D.

3:15-3:30 p.m.—Recess.

3:30-4:10 p.m.—The Influence of Cardiac Surgery on Cardiology—Sir Russell Brock, M.S., F.R.C.S.

4:10-4:50 p.m.—Surgical Treatment of Interauricular Septal Defect—Viking Olof Bjork, M.D.

4:50-5:00 p.m.—Discussion by Frank Gerbode, M.D.

THURSDAY MORNING, OCTOBER 7—9:00 A.M.-12:00 M.

Physiologic Concepts Applied to Diagnosis and Treatment of Cardiac Disease

Presiding: Frank Gerbode, M.D.

9:00-9:50 a.m.—Venous Pulse—Pedro Cossio, M.D. Discussion by Arthur Selzer, M.D.

9:50-10:40 a.m.—Left Heart Catheterization—Viking Olof Bjork, M.D. Discussion by Herbert N. Hultgren, M.D.

10:40-11:05 a.m.—Recess.

11:05-12:00 m.—Present Day Status of Intracardiac Surgery: Report of Results — Sir Russell Brock, M.S., F.R.C.S. Discussion by H. Brodie Stephens, M.D.

THURSDAY AFTERNOON, OCTOBER 7—1:30-5:00 P.M.

Arteriosclerosis and Hypertension

Presiding: Arthur R. Twiss, M.D.

1:30-2:30 p.m.—Treatment of Hypertension: Principles—F. Horace Smirk, M.D., F.R.C.P.

2:30-3:30 p.m.—Fundamental Problems in Atherosclerosis. Manuel René Malinow, M.D. Discussion by John W. Gofman, M.D.

3:30-3:45 p.m.—Recess.

3:45-5:00 p.m.—Treatment of Hypertension: Results—F. Horace Smirk, M.D., F.R.C.P. Discussion by Maurice Sokolow, M.D.

FRIDAY MORNING, OCTOBER 8—9:00 A.M.-12:00 M.

Clinical Heart Disease: The Arrhythmias

Presiding: Hilliard J. Katz, M.D.

9:00-9:30 a.m.—President's Address: Cardiac Arrest in Surgery—Frank Gerbode, M.D. (Illustrated by Colored Movie.)

9:30-10:10 a.m.—Premature Systole — F. Horace Smirk, M.D., F.R.C.P.

10:10-10:50 a.m.—Mechanisms Involved in the Prevention of Cardiac Arrhythmias—Manuel René Malinow, M.D. Discussion by John J. Sampson, M.D.

10:50-11:05 a.m.—Recess.

11:05-12:00 m.—Panel on Treatment of Arrhythmias.

Moderator: Maurice Sokolow, M.D.

Participants: Pedro Cossio, M.D., Francis L. Chamberlain, M.D., Manuel René Malinow, M.D., F. Horace Smirk, M.D., F.R.C.P.

FRIDAY AFTERNOON, OCTOBER 8—1:30-5:00 P.M.

Clinical Session

Presiding: Arthur L. Bloomfield, M.D.

Participants: Viking Olof Bjork, M.D., Sir Russell Brock, M.S., F.R.C.S., Pedro Cossio, M.D., Charles T. Dotter, M.D., Frank Gerbode, M.D., J. K. Lewis, M.D., Manuel René Malinow, M.D., F. Horace Smirk, M.D., F.R.C.P., Maurice Sokolow, M.D., Forrest M. Willett, M.D.

SONOMA

Medical displays and demonstrations combined with regular film showings were highlights of the Sonoma County Fair, held recently. The exhibit was sponsored by the Sonoma County Medical Society in cooperation with local voluntary health agencies. Several thousand people were attracted to the exhibit, where members of the medical society and student nurses were on hand to answer questions.

TUOLUMNE

Dr. James M. Busi, formerly of Jackson, recently was appointed county physician of Amador County by the board of supervisors. Dr. Busi, whose new headquarters are in Sonora, succeeds Dr. Harold E. Schwing, who resigned the post last July 1 and moved to Sacramento. Dr. George Richardson served as county physician pro tem between the resignations of Dr. Schwing and the appointment of Dr. Busi.

POSTGRADUATE EDUCATION NOTICES

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Fall schedule:

Surgical Anatomy—September 8 to November 10, 1954.

Fundamental Principles of Radioactivity—September 16 to July 7, 1955.

Annual Evening Medical Lecture Series—September 27 to December 13, 1954.

Dermal Abrasives—Planing Techniques—September 29 to November 3, 1954.

Application of Principles of Industrial Medicine to Private Practice—October 13 to December 8, 1954.

Anesthesiology—November 4 to 5, 1954.

Dermatology in General Practice—November 10 to December 15, 1954.

In Riverside:

Three-day Symposium: Peripheral Vascular Diseases—October 6. **Highlights of Clinical Endocrinology**—October 13.

Problems in Anesthesia—October 20, 1954.

In Long Beach:

Problems in Urology—October 7, 14, 21, 1954.

Cardiology—November 4, 11, 18, 1954.

Office Gynecology—January 6, 13, 20, 1954.

Contact: Mrs. Margaret H. Griffith, Assistant Head of Postgraduate Instruction, Medical Extension, University of California, Los Angeles 24, California.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Conference on General Surgery

Date: September 13 through 17, all day, at Medical Center. This conference will be offered for the purpose of stressing the newer concepts, methods of diagnosis, treatment and techniques in surgery. Throughout the session emphasis will be placed on the diagnosis and treatment of malignant lesions. Instruction will consist of didactic periods, panel discussions, and actual operative demonstrations which will be televised from the operating room to the lecture hall. This program will be designed for general practitioners who are doing surgery. The class will be limited.

Conference on Fractures and Diseases of the Bone

Date: September 20 through 23, all day, San Francisco County Hospital. The program will cover the newer concepts, methods of diagnosis, treatment and techniques. There will be didactic lectures, panel discussions, and actual demonstrations of illustrative cases. The class will be limited.

Medicine for General Practitioners

Date: September 21 to December 7, Tuesday evenings, East Oakland Hospital, Oakland. This is a continuation course which is offered every year, with complete change of program and speakers. Class limited.

Evening Lectures in Medicine, Part 1 and Part 2

Date: September 16 through December 9, Thursday evenings, Mills Memorial Hospital, San Mateo. This is also a continuation course which will be of interest to both internists (Part 1) and to physicians in general practice (Part 2).

Symposium on Endocrine Diseases and Geriatrics

Date: October 22, 23, 24 (week-end), University of California Extension Building, 540 Powell Street, San Francisco. A review of recent developments in both fields, with suggestions for the management of patients past the age of fifty.

Contact: Stacy R. Mettier, M.D., Head of Postgraduate Instruction, Medical Extension, University of California Medical Center, San Francisco 22, California.

UNIVERSITY OF SOUTHERN CALIFORNIA

Dermatology and Syphilology—Beginning September 13, 1954. Fee: $1,000.

This is a full-time course of twelve-month duration, carries thirty-two units credit toward the graduate degree of Master of Science, and is accredited by the American Board of Dermatology and Syphilology. It is designed for physicians who plan to take the examination for certification by the Board. Dr. Maximilian E. Obermayer is the course director. The course is presented only every third year and open to not more than twelve qualified physicians.

Intensive Review of Internal Medicine, Course No. 855—September 20 to October 1, 1954. Fee: $50.00.

This course is designed primarily for students planning to take the examination of the American Board of Internal Medicine. Forty hours of didactic lectures, 8:00 a.m. to 12:30 p.m., Monday through Friday. It will cover the fields of Cardiology, Endocrinology, Gastroenterology, Hematology, Infectious Diseases, Renal Diseases, Arthritis, Nutrition, Neurology, and Isotopes. Enrollment limited to 50 students, applications accepted to August 15. Course director is Donald W. Petit, M.D. Gastroenterology, No. 844, beginning September 20, 1954, one year, full time. This is a full time course designed to give a limited number of qualified physicians advanced training in this field. Didactic courses will include intensive study of physiology and pathology as well as the clinical aspects of the diseases of the digestive tract. Clinical teaching will be done in the out-patient department and on the wards of the Los Angeles County Hospital. Emphasis will be placed on the clinical approach using such diagnostic aids as sigmoidoscopy, peritoneoscopy and gastroscopy as indicated. Opportunities will be available to observe fluoroscopic examination, as well as the interpretation of the x-rays of each case. Director, George K. Wharton, M.D.

Contact: Robert S. Cleland, M.D., director, Medical Extension Education, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33, California.

STANFORD UNIVERSITY

Internal Medicine—September 13, 14, 15, 16, 17, 1954; 8:30 a.m. to 12:00 noon, 1:30 p.m. to 5:00 p.m., Stanford Hospital. Fee: $75.00. Limited to 30 physicians.

General Surgery and Surgical Anatomy, September 13, 14, 15, 16, 17, 1954; 8:30 a.m. to 12:00 noon, 1:30 p.m. to 5:00 p.m., Stanford Hospital. Fee: $100.00. Limited to 20 physicians.

Surgical Emergencies, including Fractures and Associated Trauma—September 15, 16, 17; 9:00 a.m. to 12:00 noon, 1:00 p.m. to 4:30 p.m., San Francisco Hospital. Fee: $50.00. Registration unlimited.

Contact: Office of the Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15, California.

CALIFORNIA MEDICAL ASSOCIATION, POSTGRADUATE ACTIVITIES

A Circuit Course of Postgraduate Lectures will be given in the Sacramento Valley cities of Dunsmuir, Chico, Marysville, and Auburn, during the fall months of 1954. Lecturers are from the faculty of Stanford University Medical School. The weeks of October 11 to 14, Surgical Problems in Childhood and Infants, Dr. L. R. Chandler; November 1 to 4, Selected Topics in Obstetrics and Gynecology, Dr. Lyman Stowe; November 15 to 19, Antibiotics, Dr. Lowell A. Rantz; December 6 to 9, Practical Problems in Clinical Endocrinology, Dr. Francis Greenspan.

Contact: C. A. Broaddus, M.D., Director of Postgraduate Activities, P. O. Box A-1, Carmel, California.

Medical Dates Bulletin

THIS BULLETIN of the dates of postgraduate education assemblies and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: C. A. Broaddus, M.D., P. O. Box A-1, Carmel, California.

OCTOBER

American Cancer Society, California Division, Cancer Conference, Palace Hotel, San Francisco, October 1, 1954—2:00-5:00 p.m.

California Society of Internal Medicine, Yosemite National Park, October 2, Walter Beckh, M.D., 384 Post Street, Suite 603, San Francisco 8.

San Francisco Heart Association, 25th Annual Postgraduate Symposium on Heart Disease, October 6-7-8, Gladys Taylor Daniloff, 604 Mission Street, San Francisco 5.

Los Angeles County Heart Association, Annual Professional Symposium on Heart Disease, October 13-14, Mr. Robert Pike, executive director, 316 S. Bonnie Brae, Los Angeles.

San Diego County Heart Association, Annual Professional Symposium on Heart Disease, Friday, October 15, H. Jack Hardy, executive director, 1651 Fourth Avenue, San Diego 1.

California Academy of General Practice, Sixth Annual Scientific Assembly, Los Angeles, October 24, 25, 26, 27, Wm. W. Rogers, executive secretary, 461 Market Street, San Francisco.

Orthopaedic Hospital, Comprehensive Five-day Course in Poliomyelitis, October 25 to 29, 1954, C. L. Lowman, M.D., 2400 S. Flower Street, Los Angeles 7.

NOVEMBER

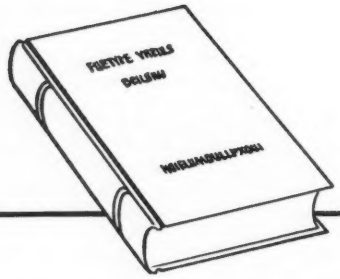
Los Angeles Urologic Research Convention, Los Angeles, November 8-12.

JANUARY

American College of Surgeons, Palm Springs, January 21-22, 1955.

CALIFORNIA MEDICAL ASSOCIATION, Annual Session, San Francisco, May 1-5, 1955.

AMERICAN MEDICAL ASSOCIATION
Clinical Session, 1954, Miami, November 30-December 3.
Annual Session, 1955, Atlantic City, June 6-10.
Clinical Session, 1955, Boston, November 29-December 2.



THE PHYSICIAN'S *Bookshelf*

MEDICAL TREATMENT OF DISEASE—The Oxford Medicine—Volume VIII. By various authors: Henry A. Christian, A.M., M.D., LL.D., Sc.D.(Hon.), M.A.C.P.(Hon.), F.R.C.P. (Can.), D.S.M. (A.M.A.). Hersey Professor of the Theory and Practice of Physics, Harvard University, Sometime Clinical Professor of Medicine, Tufts Medical School; Physician-in-Chief Emeritus, Peter Bent Brigham Hospital; Dale G. Friend, A.B., M.S., M.D., F.A.C.P., Associate in Medicine, Harvard Medical School; and Maurice A. Schnitker, B.S., M.D., F.A.C.P., Director of Medicine, St. Vincent's Hospital, Toledo. Oxford University Press, 114 Fifth Ave., New York 11, N. Y., 1953. 985 loose-leaf pages, $25.00.

This separate volume on therapy is a welcome and long needed addition to the loose-leaf *Oxford Medicine*. The owner of the *Oxford Medicine* should hereafter have prompt and authoritative information concerning new treatment with a reduction in the number of supplementary pages which he has to buy in order to keep his system up to date. The system can also become more useful for daily reference purposes and can emphasize an aspect of medicine in which it has not been outstanding: that is, modern and practical therapeutics.

The approach of the authors is somewhat surprising. They have purposefully avoided descriptions of more than one method of therapy. The methods described are often only those with which one or more of the authors has had personal experience. While this simplifies the treatment and gives it greater personal authority, it also limits the scope of the book. It must be noted that some of the recent one-volume books on therapeutics (Rehfuss, Conn, Kyser) contain a greater variety of treatment, more attractively presented.

* * *

DISEASES OF THE RETINA—Second Edition. Herman Elwyn, M.D., Senior Assistant Surgeon, New York Eye and Ear Infirmary. The Blakiston Company, Inc., New York, 1953. 713 pages, 243 illustrations, $12.00.

In this, the second edition of Dr. Elwyn's book on "The Diseases of the Retina," several new chapters have been added and others revised. The increasing importance of retrolental fibroplasia in ophthalmology has been recognized and a chapter devoted to the subject; this has been included in the chapter on vascular malformations. Other new chapters have been added on ocular tuberculosis and sarcoidosis.

A revision of the chapter on diabetic retinopathy was necessitated by the work of Ballantyne and Loewenstein and Ashton and Friedenwald. The research of these scientists leading to the discovery and elucidation of capillary aneurysms in the retina in diabetes has done much to improve our understanding of diabetic retinopathy.

Due to changing concepts of essential hypertension the chapter dealing with this topic has been reconstructed.

With the publication of this second edition not only ophthalmologists but all physicians have a ready reference text on diseases of the retina.

SURGICAL PATHOLOGY. Peter A. Herbut, M.D., Professor of Pathology, Jefferson Medical College. Lea & Febiger, Philadelphia, 1954. 893 pages, 528 illustrations, $14.00.

This book is an attempt to cover nearly all of the special fields of pathology useful to the surgeon in a concise form. As a result the presentation includes a large amount of detail without, however, providing enough on most subjects to satisfy a pathologist or anyone who desires full discussions. The presentation is almost entirely descriptive, without any effort to discuss pathogenesis or the functional significance of anatomical changes. There are, however, good bibliographies following all chapters.

The arrangement of subjects is on a regional basis, as is customary in presentations of pathology for surgeons. This, however, serves to minimize the consideration of fundamentals of pathology, and of interrelationships between pathological processes.

A few of the more than 500 illustrations are poor; several photomicrographs are not in sharp focus. The majority of the illustrations are satisfactory, however, and some are excellent.

This book should be useful as a source of simple anatomical facts concerning most diseases encountered by surgeons, and as a reference list for published articles of surgical interest in the field of pathology.

* * *

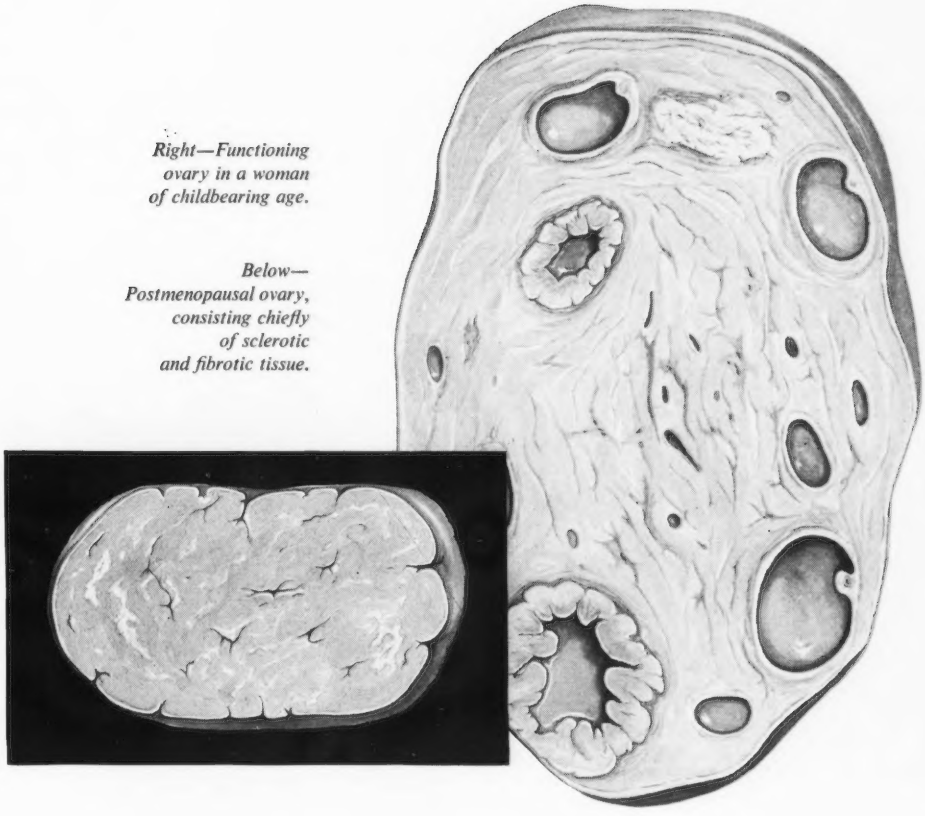
MOTHER AND BABY CARE IN PICTURES—4th Edition. Louise Zabriskie, R.N., Director, Maternity Consultation Service, New York City. J. B. Lippincott Company, Philadelphia, 1953. 244 pages, 255 figure numbers and 11 tables, $3.00.

The illustrations in this book strike the reviewer as its most valuable asset. From them a parent may gain useful understanding and suggestions, and be stimulated to further reading and interest in the life and behavior of a baby and his mother. The illustrations in the chapters on Baby Clothes and Nursery Needs are particularly good, and show the types and choices of equipment available.

The text, while usually informative and accurate, will be considered by some to be too authoritarian and not sufficiently permissive of other ways or other ideas. It is admittedly difficult in a book of this sort to make statements which are sufficiently definite to be useful and at the same time not likely to produce conflict with other equally competent opinion. Nevertheless, it is true that there is often more than one way of accomplishing the desired end and this is at times lost sight of in the text. In addition, the wording of the text occasionally is such that an apprehensive mother might easily find new problems to worry about. "Nearly all diseases predispose the body to other and more serious diseases," for instance, is a sentence with an ominous note. The insertion of the word "may" would probably be a useful addition.

Right—Functioning ovary in a woman of childbearing age.

Below—Postmenopausal ovary, consisting chiefly of sclerotic and fibrotic tissue.



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[1]Sturnick, M. I., and Gargill, S. L.: Clinical Assay of a New Synthetic Estrogen: Vallestril, New England J. Med. *247*:829 (Nov. 27) 1952.

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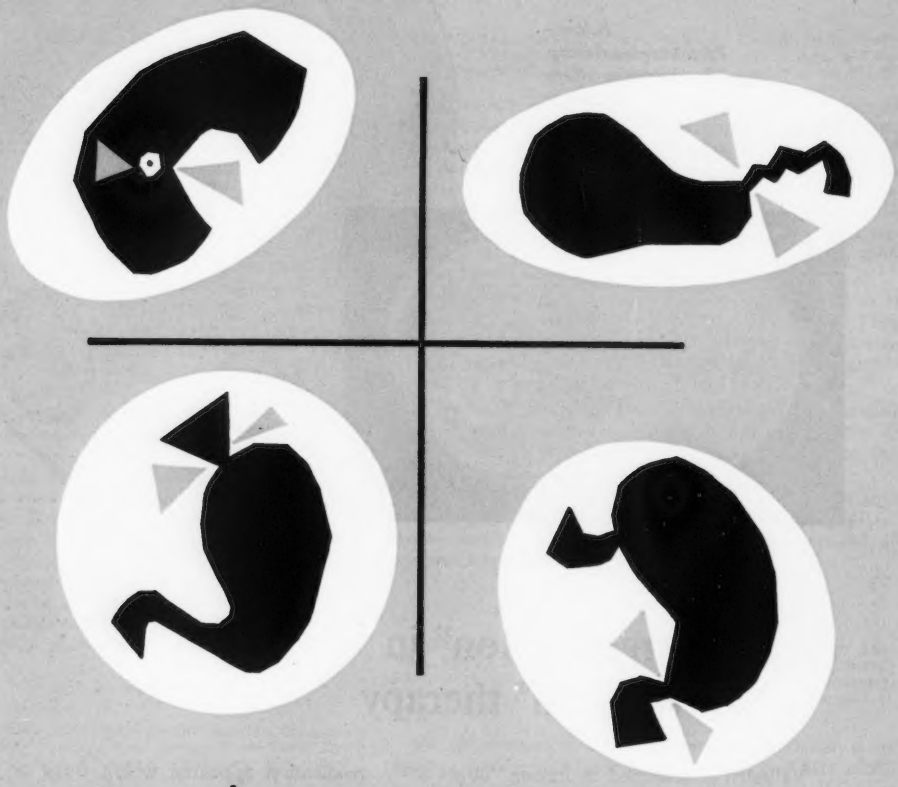

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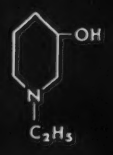

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Osteopaths Approve On-Campus Visits

The House of Delegates of the American Osteopathic Association, meeting in Toronto last July 15, approved on-campus visits of its schools by an A.M.A. committee to determine the quality of medical education provided.

This step dates back to the A.M.A. House of Delegates session in 1952 when a Committee for the Study of Relations Between Osteopathy and Medicine, headed by A.M.A. Past President John W. Cline, was created. As many doctors know, the committee has done a great deal of work since it was organized.

At the A.M.A. June meeting in San Francisco this year, the committee submitted "a progress report" to the Board of Trustees, which was later adopted by the House of Delegates.

The committee's three-page typewritten report said that "the justification or lack of justification of the 'cultist' appellation of modern osteopathic education could be settled with finality and to the satisfaction of most fair-minded individuals by direct on-campus observation and study of osteopathic schools. The committee, therefore, proposed to the Conference Committee of the American Osteopathic Association that it obtain permission for the Committee for the Study of Relations Between Osteopathy and Medicine to visit schools of osteopathy for this purpose."

Two other important paragraphs of the A.M.A.'s committee report said:

"It was agreed that each school would be visited by two members of the committee, accompanied by an individual of established experience in inspection of medical schools. The studies would be of sufficient duration, breadth and depth to establish the nature and scope of the educational program and determine the quality of medical education provided.

"The Conference Committee favorably recommended this proposal to the Board of Trustees of the American Osteopathic Association which considered it at a special meeting on February 6-7, 1954. It has referred the question to the House of Delegates which will act upon the proposal at its Toronto meeting in July. If the action of the House of Delegates of the American Osteopathic Association be favorable, the on-campus observation can be carried out in the fall of this year."

The action of the House of Delegates of the American Osteopathic Association was favorable. The Association issued a statement recently setting forth the action of its delegates. It is rather lengthy, but since it is so important to our study so far I quote it herewith in full:

"The House of Delegates of the American Osteopathic Association in session in Toronto, July 15, 1954, directed the Conference Committee to con-

(Continued on Page 60)

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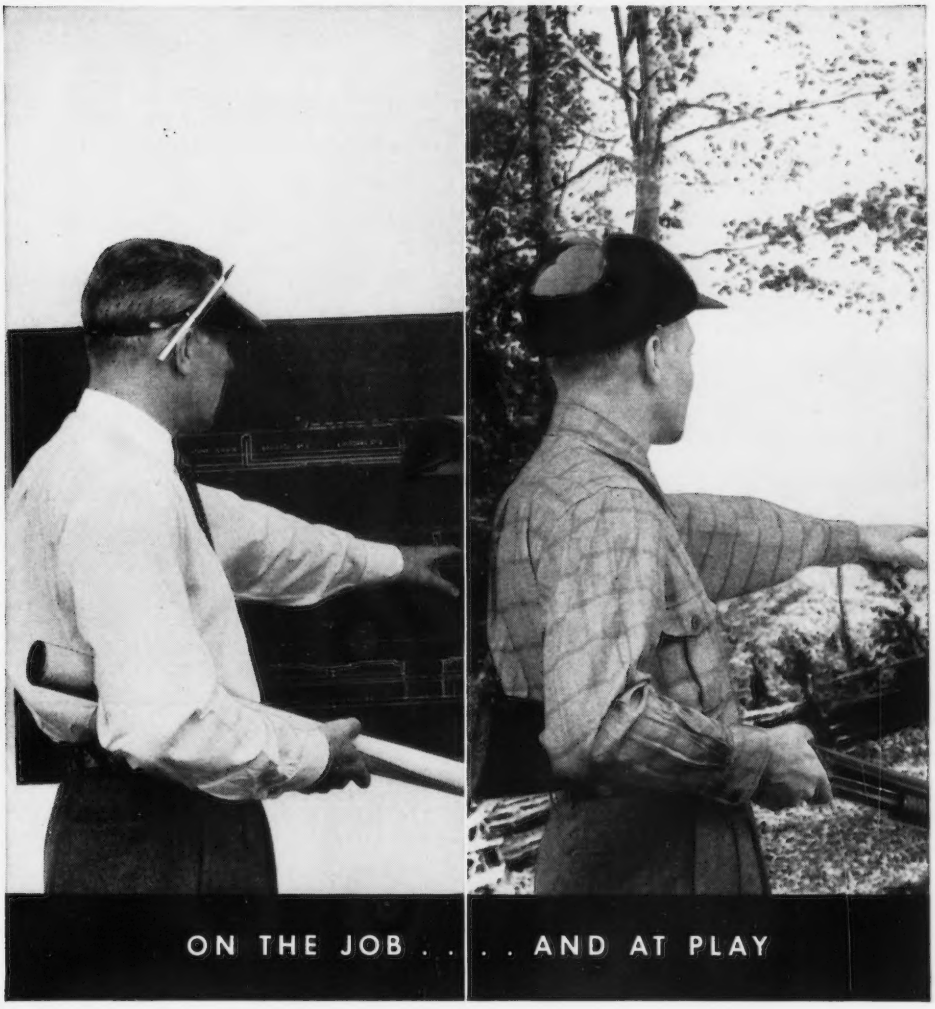

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Osteopaths Approve On-Campus Visits

(Continued from Page 56)

tinue in its deliberations with the committee for the Study of Relations Between Osteopathy and Medicine of the American Medical Association.

"In expressing its confidence in the four years' work of the A.O.A. Conference Committee, the House agreed that the committee should have the authority to negotiate with the A.M.A. committee on possible visitation by the latter of osteopathic colleges. The purpose of this visitation would be to observe the nature and scope of their education programs. This observational opportunity would be conducted entirely within limits agreed upon by the two committees. The immediate purpose of such on-campus visitations is to provide information to the A.M.A. committee to assist in its efforts to remove the cultist designation from the osteopathic profession.

"The House of Delegates of the A.O.A. in its approval of such visitations has established no new precedent, except that the proposed visitations would permit a private agency to determine for itself osteopathic educational programs and procedures. A much wider permission has long been afforded to official state examining agencies, granting agencies of the U. S. Department of Health, Education and Welfare, and other official groups, to visit osteopathic schools. If the A.O.A. Conference Committee

(Continued on Page 66)

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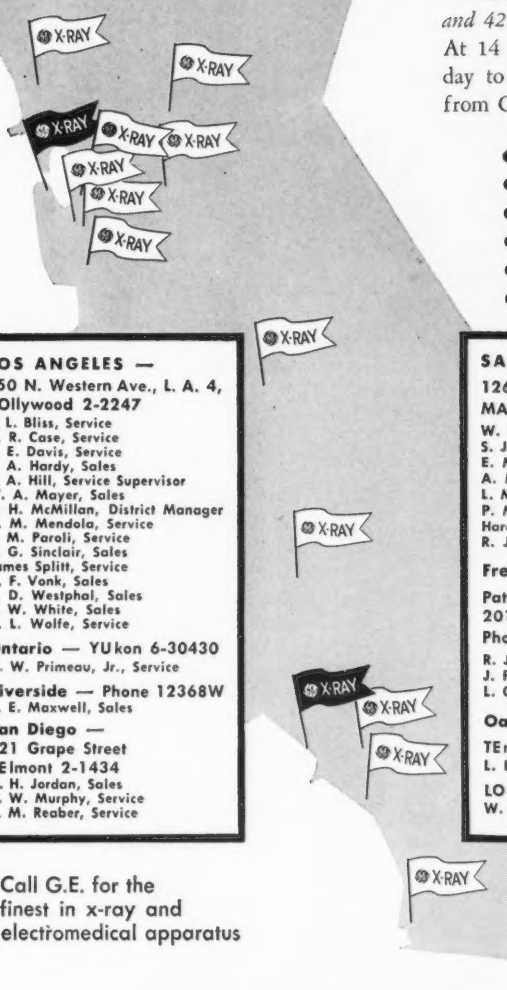

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Osteopaths Approve On-Campus Visits

(Continued from Page 60)

permits observation of osteopathic colleges by a private agency—it does so on the basis the American Osteopathic Association has long indicated its willingness to cooperate with the authorized group of any profession, 'wherever that cooperation may be expected to improve the health service offered the public.'

"Approval or accreditation of osteopathic colleges is entirely without the province of observational bodies and any visitations by the Committee on Relations Between Osteopathy and Medicine, if made, will be made purely for the purpose of affording a private agency an opportunity to inform itself about osteopathic educational programs.

"In commenting on this action, the newly elected president of the American Osteopathic Association, John W. Mulford, D.O., of Cincinnati, stated that the action was taken by the House of Delegates, 'with the complete confidence that neither the osteopathic profession nor the medical profession wishes to inflict its officialdom on the other.' He went on to say that the action of the A.O.A. House of Delegates could be considered as 'a logical outgrowth of the mutual respect which the two schools of healing hold for each other.' "

—The A.M.A. Secretary's Letter

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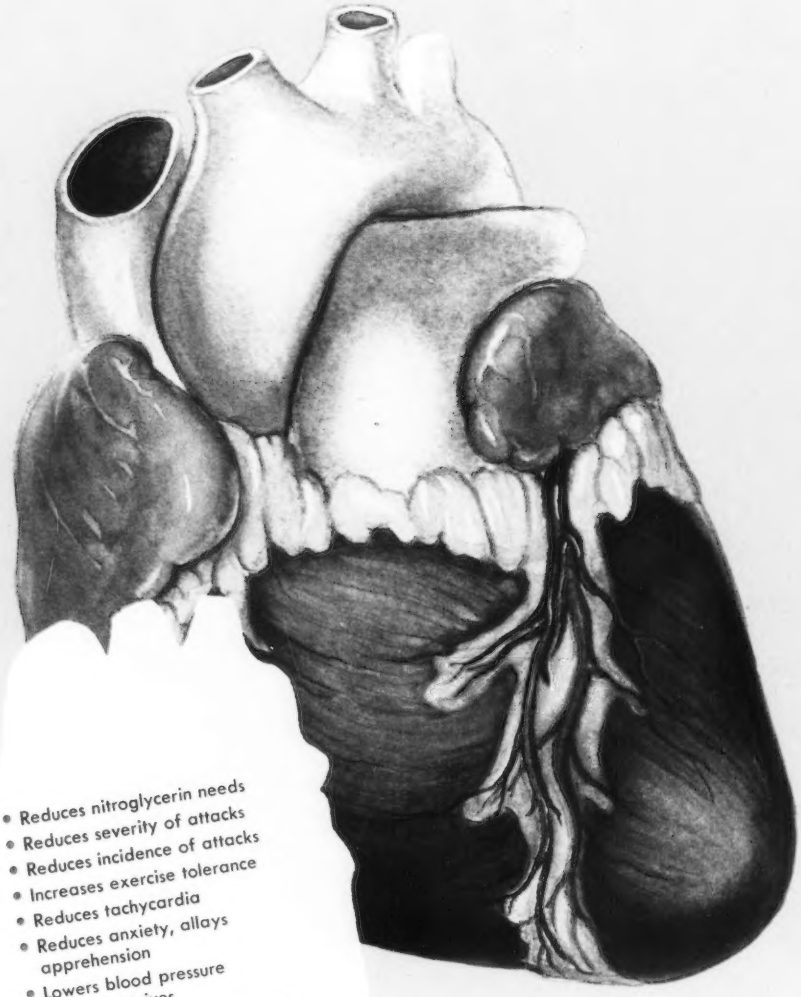

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In Every Field of Medicine

THE TRANQUILIZING ACTION OF

Rauwiloid®

The ORIGINAL alseroxylon fraction of Rauwolfia

Serves Better

when anxiety and apprehension must be allayed—before surgery—during diagnostic work-up—during the menopause—in any tension-producing state—and in mild labile hypertension . . .

Because... Rauwiloid shows virtually no side actions—even fewer than other rauwolfia preparations—and there are no contraindications . . .

Because... Rauwiloid is simpler to use—unlike the barbiturates—somnolence no problem—not habit forming—no upward dosage adjustment needed.

So Easy, too... **merely two 2 mg. tablets at bedtime!**

Riker LABORATORIES, INC., LOS ANGELES 48, CALIF.

Recurrent Tuberculous Meningitis Can Now Be Cured

Recurrences of tuberculous meningitis—one of the most difficult forms of meningitis to treat—no longer mean that recovery is hopeless.

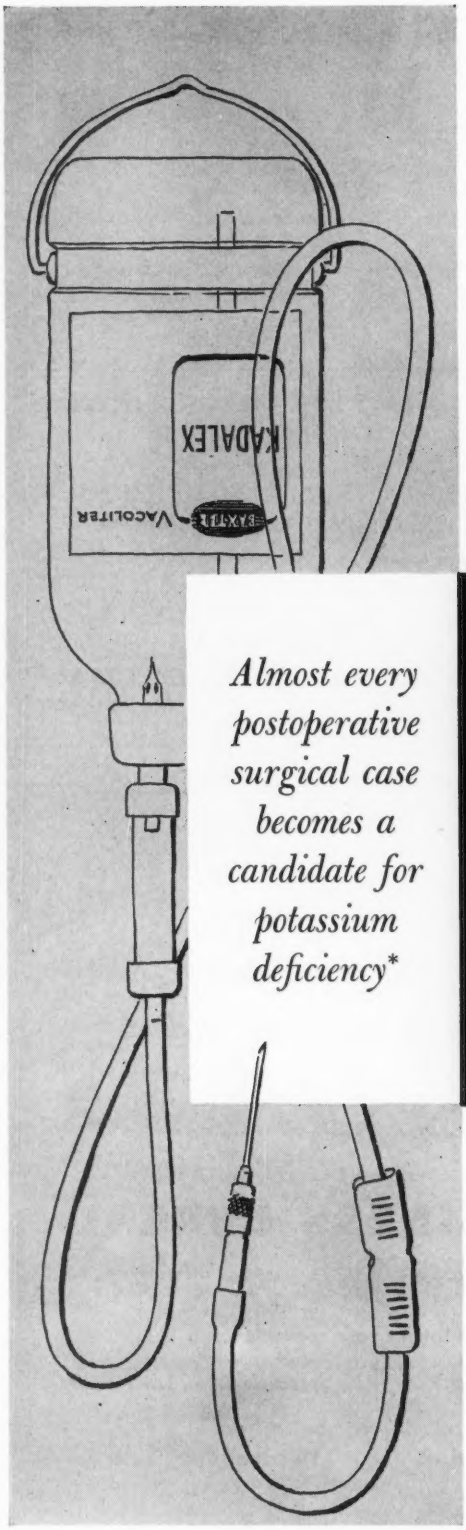
There is even a possibility that recurrences need not prevent pregnancy, three physicians stated in a recent issue of the *Journal of the American Medical Association*.

They reported on "what appears to be one of the most prolonged instances of treatment with complete recovery from the disease since the introduction of streptomycin."

The patient, 15 years old when first admitted to the Cook County Hospital in Chicago, recovered, and later bore three "robust, healthy children." For two years since her third child was born, she has been free of any symptoms of the tuberculous condition, and has successfully recovered from attacks of syphilis and jaundice.

The disease, a common form of meningitis in which the membrane enclosing the brain and spinal column becomes inflamed, sometimes leaves an apparently-recovered patient subnormal mentally, or with paralysis. The Cook County Hospital patient was treated for several recurrences between October

(Continued on Page 72)



Always consider the possibility of

potassium deficiency

*Almost every postoperative surgical case becomes a candidate for potassium deficiency**

Speed recovery — Improve protein metabolism — Avoid potential danger

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Kadalex®

(0.2% Potassium Chloride in 5% Dextrose Solution)

One of the most exciting electrolytes of the current era

Over 900 papers on potassium therapy have appeared in medical literature since 1946.

BAXTER

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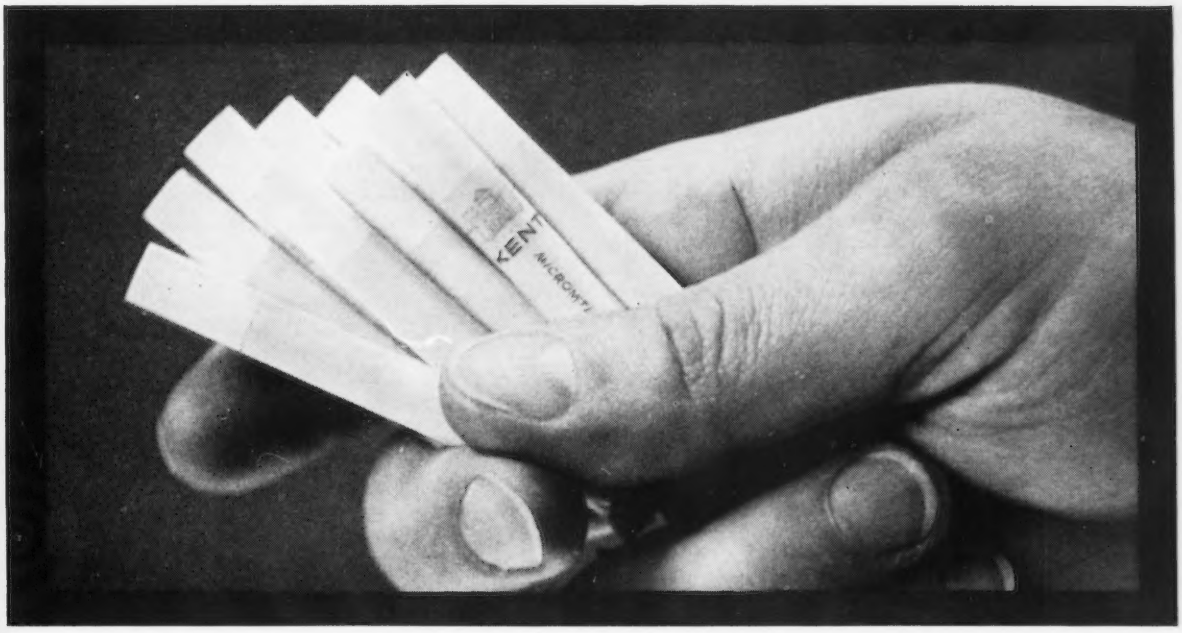
**Randall, H. T., Habif, D. F., Lockwood, J. S., and Warner, S. C.: Potassium Deficiency in Surgical Patients, Surgery 26 341 (Sept.) 1949*

Why is it, Doctor, that one filter cigarette gives so much more protection than any other?



The answer is simply this: Among today's nine brands of filter cigarettes, KENT, and KENT alone, has the *Micronite Filter*... made of a pure, dust-free material that is so safe, so effective it has been selected to help filter the air in hospital operating rooms.

> In continuing and repeated impartial scientific tests, KENT's Micronite Filter consistently proves that it takes out *more* nicotine and tars than *any* other filter cigarette, old or new.

And yet, with all its superior protection, KENT's Micronite Filter lets smokers enjoy the full, satisfying flavor of fine, mellow tobaccos.

For these reasons, Doctor, shouldn't KENT be the choice of those who want the minimum of nicotine and tars in their cigarette smoke?

Kent

... the only cigarette with the MICRONITE FILTER

for the greatest protection in cigarette history

"KENT" AND "MICRONITE" ARE REGISTERED TRADEMARKS OF P. LORILLARD COMPANY

PARITY AND CONCEPTION CONTROL

A report covering a total of 425 patient years of exposure

A meticulous study[1] of 325 patients using jelly alone as a contraceptive measure notes a markedly higher degree of effectiveness for this technic "among patients of lower parity."

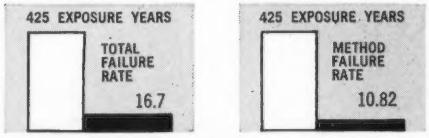
Apparently this significant conclusion can be attributed mainly to the anatomic factor. The less relaxed vagina in the lower parity group permits a more successful confinement of the jelly to the region of the external os.

For a period of three years, Guttmacher and associates[1] studied the efficacy of jelly-alone technic for contraception among multiparas and patients of lower parity. Although the method achieved marked success among all groups, a few unplanned pregnancies did occur. It was possible to categorize all of these unplanned pregnancies into either "method failures" or "patient failures." Patient failures were those wherein patients readily admitted occasional or frequent omission of the use of the jelly before intercourse. Method failures were attributed only to those cases where patients averred a complete adherence to the use of the jelly.

With 325 patients using the jelly-alone [RAMSES VAGINAL JELLY] technic for periods ranging from 3 months to 3 years, a computation showed that there was a total of 425 exposure years involved. The total unplanned pregnancy rate averaged only 16.7 per 100 patient years of exposure.

When method failures only were computed, the unplanned pregnancy rate dropped to 10.82 per 100 years of exposure.

1. Finkelstein, R.; Guttmacher, A., and Goldberg, R.: Am. J. Obst. & Gynec. 63:664, Mar., 1952.



Conception control in 325 patients using RAMSES Vaginal Jelly for 3 months to 3 years[1]

On the basis of observations, the conclusion is valid that while RAMSES VAGINAL JELLY is markedly effective as a jelly-alone technic, the method is "one of choice" in patients of lower parity and, of course, among the nulliparous.

Because parity, motivation, and patient intelligence all play a major part in the success of a contraceptive technic, the final basis for selection of the contraceptive method must rest with the physician whose judgment is predicated on a thorough evaluation covering all of these factors.

When in the judgment of the physician, parity, anatomic factors, or motivation indicate the use of the diaphragm-and-jelly method of contraception, the RAMSES® TUK-A-WAY® Kit is recommended. The RAMSES® diaphragm is flexible and cushioned—provides an optimum barrier and utmost comfort. In combination with RAMSES jelly it offers a reliable contraceptive technic.

Physicians may now obtain a complimentary package of RAMSES VAGINAL JELLY*. Requests on your prescription blank should be mailed to Dept. CA1, Julius Schmid, Inc., 423 West 55th Street, New York 19, N. Y.

*Active agent, dodecaethyleneglycol monolaurate 5%, in a base of long-lasting barrier effectiveness.

JULIUS SCHMID, INC. *gynecological division*
423 West 55th Street, New York, 19, N. Y.

The known clinical advantages of rapid absorption, wide distribution in body tissues and fluids, prompt response and excellent toleration, PROVED by the extensive experience of physicians in successfully treating many common infections due to susceptible gram-positive and gram-negative bacteria, rickettsiae, spirochetes, certain large viruses and protozoa, have established

Terramycin®

Brand of oxytetracycline

as a broad-spectrum antibiotic of choice

PFIZER LABORATORIES, Brooklyn 6, N.Y.
Division, Chas. Pfizer & Co., Inc.

Pfizer

Recurrent Tuberculous Meningitis Can Now Be Cured

(Continued from Page 67)

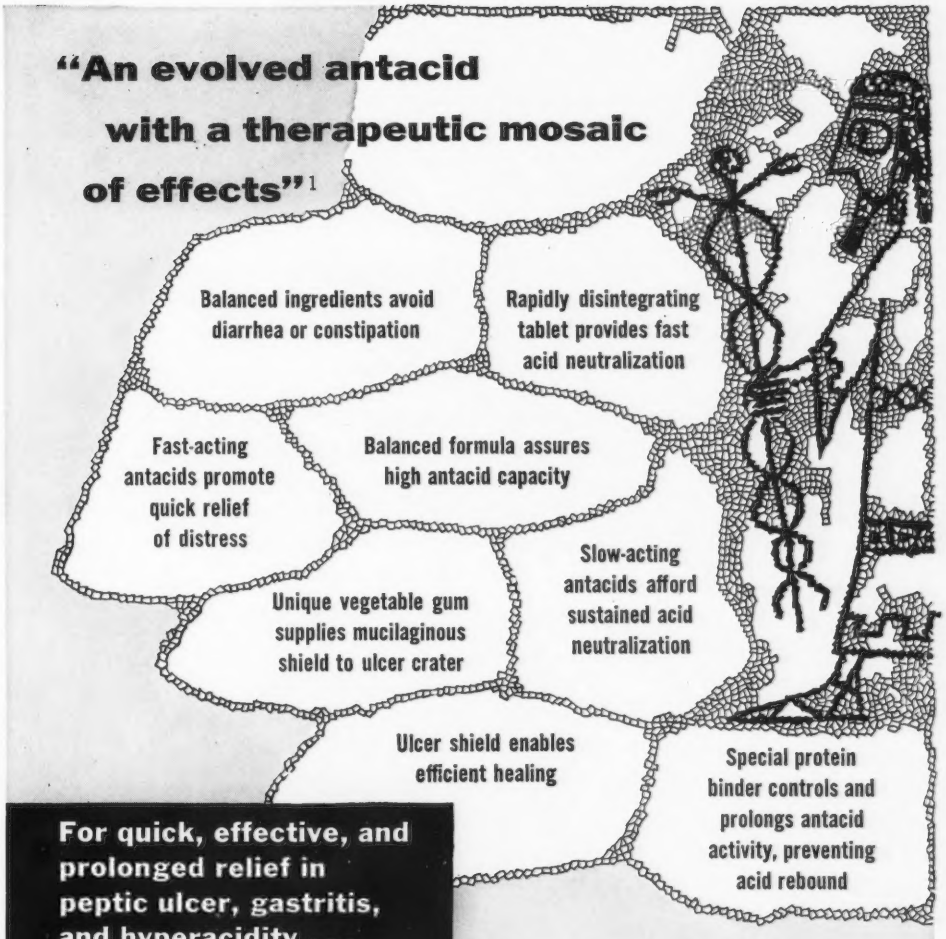
1947 and September 1948. Frequent check-ups since then have shown her to be in good health.

"Among the commoner forms of meningeal infection, tuberculous meningitis continues to be the most resistant to modern treatment," the physicians said. "Even for those patients who survive the early stages of the disease, there can be no assurance that a complete recovery will be accomplished. If treatment is discontinued too soon a relapse may occur."

This case shows "that recurrences do not necessarily mean that recovery is hopeless—they only mean that treatment should again be instituted most vigorously," the physicians said.

It also shows that the disease can be cured without resorting to the old method of injecting medication into the spinal canal, they said. The Cook County Hospital patient was given intramuscular injections of streptomycin.

Finally, the case "strongly suggests" that healed tuberculous meningitis need not prevent pregnancy, they said. The report was made by Drs. Archibald L. Hoyne and Allen Schultz, Chicago, and Dr. Jerome H. Diamond, now of South San Francisco.



For quick, effective, and prolonged relief in peptic ulcer, gastritis, and hyperacidity . . .

prescribe TREVIDAL®

Trevidal is available in boxes of 100 tablets, specially stripped for easy carrying.

IN EACH TABLET:

Aluminum hydroxide gel, dried	90 mg.
Calcium carbonate	105 mg.
Magnesium trisilicate	150 mg.
Magnesium carbonate	60 mg.
Egraine*†	45 mg.
Regonol*‡	100 mg.

*Trade Mark †Protein binder from oat ‡Cyamopsis tetragonoloba gum

[1]C. B. DeCourcy, and C. Rhomberg, Staff. Conf. DeCourcy Clinic, 26, June 15, 1954

Organon INC. • ORANGE, N. J.

Coughing your head off?

Hycodan®

BITARTRATE (Dihydrocodeinone Bitartrate)

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

whenever
COUGH THERAPY is indicated

young folks
old folks
in-between folks

Three forms available: *Oral Tablets (5 mg. per tablet), Syrup (5 mg. per teaspoonful), Powder (for compounding). Narcotic blank required. Average adult dose, 5 mg.*

Endo®

Literature? Write
Endo Products Inc., Richmond Hill 18, N.Y.

The Majority of Your Arthritics Need Only...

Pabirin®

POTENTIATED SALICYLATE THERAPY

RAPID ABSORPTION FOR PROMPT ACTION

In Capsule Form for Most Rapid Absorption

EACH CAPSULE CONTAINS:

Acetylsalicylic acid..... 5 gr.
Para-aminobenzoic acid... 5 gr.
Ascorbic acid..... 50 mg.

SODIUM-FREE

The high salicylate blood levels produced by Pabirin quickly lead to a degree of analgesia sufficient to control discomfort in the majority of arthritics. Concomitantly, joint mobility is improved, not only through prolonged pain relief but also through increased elaboration of endogenous cortisone. Thus in most arthritic patients, Pabirin alone is adequate therapy.

Pabirin is rapidly effective because it is formulated in quickly disintegrating gelatin capsules which release their contents within a matter of minutes. It is well tolerated since it contains acetylsalicylic acid, widely regarded the salicylate of choice. Its PABA retards urinary salicylate loss, and its generous content of ascorbic acid aids in preventing depression of blood vitamin C levels.

Average dose, 2 to 3 capsules 3 or 4 times daily.

SMITH-DORSEY • **Lincoln, Nebraska** *A Division of* **THE WANDER COMPANY**

Million Dollars Contributed for Medical Education

More than a million dollars in contributions by American physicians during 1953 have been turned over to the National Fund for Medical Education to ease the financial plight of the nation's medical schools.

Dr. Edward L. Turner, Chicago, secretary-treasurer of the American Medical Education Foundation, announced recently that a check for $1,101,578.31 has been given to the national fund. This includes a $500,000 grant by the American Medical Association Board of Trustees.

Doctor Turner said "the contributions sent in by doctors throughout the nation is an example of outstanding service in aiding humanity through medicine.

"The 79 great institutions of medical learning now graduate more than 6,000 doctors each year. In providing the proper instruction for these young men, our medical schools have an annual financial need of approximately $10 million in addition to their normal budgets. American doctors have come to the aid of these schools with their contributions through the American Medical Education Foundation.

"Evidence of the doctors' interest in supporting the schools rather than relying on federal subsidy is demonstrated by the marked increase in the number of contributors during the past three years.

"In 1951, the first year of the American Medical Education Foundation, 1,876 doctors contributed to the fund. In 1952, there were 7,259 contributors and the list skyrocketed to 18,159 during 1953."

Since 1951, the American Medical Education Foundation has received $3,563,883.09 as gifts from doctors to support the medical schools. The American Medical Association has made grants of $2,000,000 of this sum.

The National Fund for Medical Education is a non-profit corporation that solicits contributions from business and industry for the benefit of medical education. The fund also acts as distributing agency for monies collected by the education foundation.

chelated iron

a revolutionary chemical advance now applied to anemia therapy in

FERROLIP® PLUS

FERROLIP PLUS

- **provides an entirely new, better tolerated and better utilized chelated iron (Ferrolip) . . .**
- **plus every known basic hemogenic agent in therapeutic potencies . . .**
- **for dramatic clinical response in primary and secondary anemias**

Each Ferrolip Plus Capsule contains:

Iron Choline Citrate† (Ferrolip)	200 mg.
Vitamin B_{12} Crystalline, U.S.P.	10 mcg.
Folic Acid	0.5 mg.
Ascorbic Acid	50 mg.
Thiamine HCl	2 mg.
Riboflavin	1 mg.
Pyridoxine HCl	0.5 mg.
Desiccated Duodenum*	100 mg.
Liver–Gastric Tissue*	100 mg.

*Contains Intrinsic Factor
†U.S. Patent No. 2575611

ENTIRELY NEW . . .

By means of a special type of chemical bonding known as "chelation," ionic iron in Ferrolip is surrounded by claw-like molecular rings of a "chelating" agent (choline dihydrogen citrate).

EXCEPTIONALLY WELL TOLERATED . . .

The chelated iron complex (Ferrolip) releases iron gradually in the intestine. Since no mass discharge of free iron takes place to irritate the gastrointestinal tract, chelated iron is better tolerated.

BETTER UPTAKE . . .

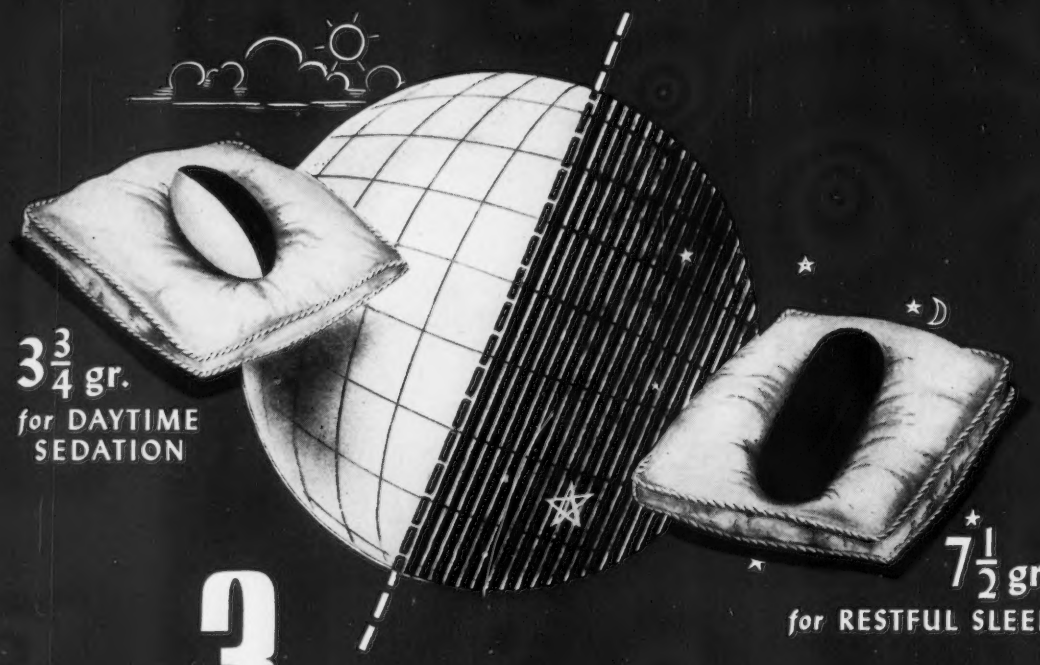
Better uptake also occurs since chelated iron is soluble throughout the entire pH range of the intestinal tract.

1 to 3 capsules daily.

Bottles of 100 and 1000.

MORE SATISFIED PATIENTS WITH BETTER TOLERATED FERROLIP PLUS

FLINT, EATON & COMPANY • DECATUR, ILLINOIS
Western Branch: 112 Pomona Avenue, Brea, California



3 IMPORTANT REASONS FOR SPECIFYING THE ORIGINAL FELSULES Chloral Hydrate

℞ Felsules *Chloral Hydrate ... now identifies the original Fellows Chloral Hydrate Capsules*

FELSULES FULL THERAPEUTIC RESPONSE

Full and unmodified therapeutic response to Chloral Hydrate is secured with FELSULES® Chloral Hydrate because the vehicle has no physiological action of its own.

FELSULES MAXIMUM EFFECTIVENESS

The use of an oleaginous non-irritant solvent results in smooth, yet prompt, and complete absorption and effectiveness.

FELSULES HIGH TOLERANCE

Available: 3¾ gr. (0.25 Gm.) 24's, 100's and 500's 7½ gr. (0.5 Gm.) 50's and 250's

Samples and literature? Of course – write to

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S.K.F.'s widely acclaimed new **antihistamine** preparation

TELDRIN*

chlorprophenpyridamine maleate

SPANSULE*

brand of sustained release capsules

for continuous and sustained relief of allergic disorders

"BEST METHOD AVAILABLE"

30 patients, severe allergic symptoms. "It is our belief that this drug used in this form provides the best method available for antihistamine medication."

—ROGERS, H.L.: Ann. Allergy 12:266 (May-June) 1954.

"HEARTILY ENDORSED"

357 patients, allergic disorders. "66% of the group obtained excellent symptomatic relief; 16% obtained good relief; 11%, fair relief; 7% obtained no relief."

"['Teldrin' *Spansule*] capsules, aside from their long-acting property and low incidence of side effects, provide an obvious advantage of patient acceptance. . . . they were heartily endorsed by nearly all patients."

—GREEN, M.A.: Ann. Allergy 12:273 (May-June) 1954.

"MOST USEFUL"

128 patients, hay fever. "From these results, it is believed that the ['Teldrin' *Spansule*] capsule is the most useful antihistaminic preparation currently available as adjuvant therapy in treating hay fever."

—MULLIGAN, R.M.: J. Allergy 25:358 (July) 1954.

around-the-clock protection

Adults and Older Children: One capsule (12 mg.) q12h.

Younger Children: One capsule (8 mg.) q12h.

made only by

Smith, Kline & French Laboratories, Philadelphia

the originators of sustained release oral medication

*T.M. Reg. U.S. Pat. Off. Patent Applied For

new 3 year study[1] shows

"beneficial effect" of

DESITIN®

OINTMENT

the pioneer external **cod liver oil** therapy

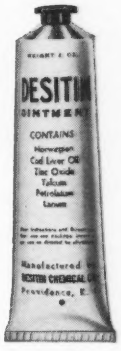
in **extensive dermatitis, diaper rash, severe intertrigo, chafing, irritation** (due to diarrhea, urine, soaked diapers, etc.)

DESITIN OINTMENT achieved "significant amelioration" or practically normal skin in 96¾% of infants and children suffering intense edema, excoriation, blistering, maceration, fissuring, etc. of contact dermatitis. This and other recent studies recommend Desitin Ointment as "safe, harmless, soothing, relatively antibacterial"..... protective, drying and healing.[2-4]

samples and reprint[1] available from

DESITIN CHEMICAL COMPANY

70 Ship Street • Providence 2, R. I.



Desitin Ointment is a non-irritant, non-sensitizing blend of high grade, crude Norwegian cod liver oil (with its high potency vitamins A and D, to benefit local metabolism,[1] and unsaturated fatty acids in proper ratio for maximum efficacy), zinc oxide, talcum, petrolatum, and lanolin. Does not liquefy at body temperature and is not decomposed or washed away by secretions, exudate, urine or excrements. Dressings easily applied and painlessly removed. Tubes of 1 oz., 2 oz., 4 oz.; 1 lb. jars.

1. Grayzel, H. G., Helmer, C. B., and Grayzel, R. W.: New York St. J. M. 53:2233, 1953.
2. Heimer, C. B., Grayzel, H. G., and Kramer, B.: Archives of Pediatrics 68:382, 1951.
3. Behrman, H. T., Combes, F. C., Bobroff, A., and Leviticus, R.: Ind. Med. & Surgergy. 18:512, 1949.
4. Turell, R.: New York St. J. M. 50:2282, 1950

Older Persons Shouldn't Be Overprotected

"Babying" elderly persons until they feel useless and unwanted may be a good way to hasten them to the grave, a Pittsburgh physician said recently.

The aged should be helped to retain their dignity and pride instead of giving up, Dr. Marc H. Hollender and collaborating writer Stanley A. Frankel said in a recent issue of *Today's Health* magazine, published by the American Medical Association.

"It is as unwise to overprotect our aged parents as to overindulge our children," they said. "Overprotection makes older people feel you deprecate them, regard them as incompetent, incapable or inferior."

They told of the 83-year-old father of a millionaire who went to work pressing pants, to the embarrassment of his son, who "completely missed the point." The father's work was "probably the one thing that kept him relatively healthy and happy. Permanent retirement to Florida, to seclusion, to peace and quiet might mean only emotional problems, perhaps more rapidly failing health and an earlier grave."

Overprotection can injure the pride of the old person and make him "a permanent, hopeless dependent" instead of someone who might otherwise "put in years of worthwhile service to society." Dependency may mean despondency, irritableness and a "dictatorial" attitude. In other cases, overprotectiveness causes some to give up trying. They drop back into a state of vegetating instead of actively living.

"Much has been written recently about the undesirability of industry setting up arbitrary retirement ages of 60 or 65," they said. "It has been proved that some men are still active and vigorous at 70 while others are through at 50. Whenever you automatically retire someone when he has reached a certain chronological age, you may well condemn that man to an earlier grave, and to an unhappy last few years.

"The latest plans are to retire a man to something rather than from something," giving him a lighter or part-time job. "If business blue-prints a gradual and never-complete retirement for the aging worker, the sons and daughters should go along with it.

"If the old gentleman (or lady) wants to keep going, it's likely father still knows best. Sometimes the well-meaning impetuosity of youth must bow to the distilled wisdom of age," they said.

Poliomyelitis totals for 1954 continue below those for 1953: from July 25-31, reported cases totaled 1,484, about 8 per cent less than the 1,626 figure for corresponding weeks of both last year and the 1949-1953 median. The 1954 week's figure, however, was 28 per cent above the July 18-24, 1954, total. The Public Health Service calls the increase normal for this time of year. —*A.M.A. Washington Letter*

BOYLE

THERAPEUTIC HEMATINIC

Improved 2 ways...

Intrinsic factor U.S.P. added

ONLY 1 TABLET DAILY

FOR MOST ANEMIAS

NOW available in bottles of 30 at all pharmacies

New low cost package, 1-month supply

For therapeutic treatment of most anemias

COMPARE

a single Boyle Therapeutic Hematinic tablet with *any other* single Hematinic tablet, for potencies, tolerance, and cost to patient.

Prescribe the 1-tablet daily dose that assures patient cooperation... Boyle Therapeutic Hematinic

1 capsule-shaped tablet contains:

Vitamin B_{12} with Intrinsic Factor, USP	1/5 Unit
Ferrous Sulfate (Exsic.) (10.4 Gr.)	670.0 mg.
(Iron content	*200.0 mg.)*
B_{12}	30.0 mcg.
Folic Acid	1.5 mg.
B_1	6.0 mg.
B_2	3.0 mg.
Niacinamide	54.0 mg.
C	150.0 mg.
Copper	1.0 mg.
Cobalt	1.0 mg.
Liver Desiccated, N.F.	75.0 mg.

2 other Boyle Hematinic products available:

BOYLE HEMATINIC with B12

BOYLE HEMATINIC

BOYLE & COMPANY BOYLE **LOS ANGELES 33, CALIFORNIA**

1 tablet daily... An outstanding therapeutic Vitamin-Mineral Balance within your patient's budget

COMPARE POTENCIES

COMPARE BALANCE

COMPARE TOLERATION
Tablet disintegrates slower

Each capsule-shaped tablet contains:

VITAMINS	
A (acetate)	25,000 USP Units
D	1,500 USP Units
C	150.0 mg.
B_{12}	5.0 mcg.
Mixed Tocopherols	5.0 mg.
B_1	10.0 mg.
Niacinamide	100.0 mg.
Calcium Pantothenate	5.0 mg.
B_2	5.0 mg.
B_6	0.5 mg.
Folic Acid	0.1 mg.
K	2.0 mg.
MINERALS	
Ferrous Sulfate Dried	130.0 mg.
Dicalcium Phosphate Anhydrous	250.0 mg.
Iodine	0.15 mg.
Copper	1.0 mg.
Cobalt	0.15 mg.
Manganese	3.0 mg.
Magnesium	10.0 mg.
Potassium	5.0 mg.
Molybdenum	0.2 mg.
Zinc	1.5 mg.
Nickel	0.1 mg.

Available in bottles of 30 and 100 tablets at all pharmacies

ALSO AVAILABLE:
Per Diem Vitamin and Mineral Nutrition at the *Maintenance* level
DEIMAL
(Boyle)
in bottles of 100 at all pharmacies

BOYLE & COMPANY **BOYLE** LOS ANGELES 33 CALIFORNIA

Adults Can Lick Rheumatic Fever

Most persons can resume normal lives if the first attack of rheumatic fever comes in adulthood rather than childhood, a study of 98 World War II veterans shows.

Three California physicians recently stated in the *Journal of the American Medical Association* that adult rheumatic fever patients should receive encouragement toward social adjustment in addition to treatment for physical recovery.

"It would appear that, in addition to extensive rehabilitation, attempts should be made at the time of illness to encourage optimism in patients and avoid overemphasis of any possible or expected disability," they said.

Among the 98 studied by the three California doctors, most made "adequate adjustments in regard to education, jobs, marriage and family life, and recreational activities." The worst adjustments were made by those who were pessimistic about the illness.

Only 18.4 per cent of the veterans who had an initial attack of rheumatic fever during military service showed any residual heart disease, the physicians said. The vast majority of them were able to resume normal lives.

"Ninety-five per cent were gainfully employed or in school at the time of the follow-up study," they said. "No instance of serious disability . . . was observed."

Compared to a 10 to 20 per cent fatality rate among children in the first five years after rheumatic fever, the rate was only 1.7 per cent among veterans, according to the National Research Council.

The study was made by Drs. Ephraim P. Engleman, Leo E. Hollister, and Felix O. Kolb, San Francisco.

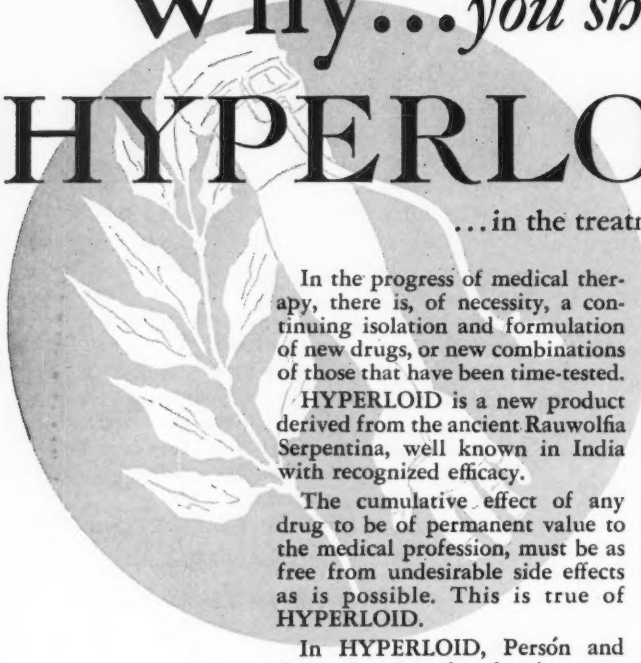
DR. HOWARD RUSK, New York, in a lecture before the American Academy of General Practice: "Sick people ask their God, 'why must I suffer?' Possibly the answer is in the work of the potter. Fine ceramic pieces are not made by setting clay out in the sun. They come only from the white heat of the kiln. In the firing process some pieces are broken, but those that survive the heat are transformed from dull clay into objects of priceless beauty. And so it is with the sick, suffering, and crippled people. Those who, through medical skill, opportunity, work and courage, survive their illness or overcome their handicap, take their places back in the world with a depth of spirit which we can hardly measure."

—*The A.M.A. Secretary's Letter*

Why...*you should consider*

HYPERLOID* (Rauwolfia Serpentina)

...in the treatment of hypertension



In the progress of medical therapy, there is, of necessity, a continuing isolation and formulation of new drugs, or new combinations of those that have been time-tested.

HYPERLOID is a new product derived from the ancient Rauwolfia Serpentina, well known in India with recognized efficacy.

The cumulative effect of any drug to be of permanent value to the medical profession, must be as free from undesirable side effects as is possible. This is true of HYPERLOID.

In HYPERLOID, Persón and Covey have produced a hypotensive of controllable and constant potency for the treatment of hypertension. It effects a relaxing sedation, mild bradycardia, and a sense of well being.

While most effective in mild and labile hypertension, HYPERLOID is useful in virtually every case of essential hypertension. It is completely safe, lowering the blood pressure slowly and gradually. There are no serious toxic or side effects and no known contraindications.

It is compounded as a sugar-coated tablet derived from the whole root.

Why the whole root?

Hypotensive activity of Rauwolfia is not confined to one single alkaloid. Several of the alkaloids have a relaxing activity, some of which would be lost by the use of one alkaloid alone. Too, the non-alkaloid resin fraction, which is reported to have additional sedative effect, is present in HYPERLOID, but is not present in any of the alkaloid extracts. There are the same side effects in all three types of Rauwolfia products – extracts, single alkaloid, or whole root. Use of the whole root offers these additional advantages.

Constant, unvarying potency is achieved even in whole root formulation, through animal tests and assay of alkaloid content, allowing predictable results. Tolerance does not develop, thus controlled dosage is possible, achieving an even effective level.

It may also be used successfully in combination with lower dosage requirements of more potent hypotensive agents which in larger quantities are prone to produce toxic or undesirable side-effects.

Its potency is based on the milligrams of alkaloids as the hypotensive effect lies in the alkaloid content of rauwolfia. This in HYPERLOID is constant at 2 mg. per tablet. And of some importance is the fact that by the method of formulation, it is possible to produce HYPERLOID in a more inexpensive form than hitherto possible. This in itself is an especially desirable factor in any long continuing treatment in the control and management of hypertension.

We have just put aside a quantity of sample packages for further consideration. Just ask your secretary to fill out this coupon and mail it today.

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UNITENS

brand of cryptenamine

Unitensen is recommended for the patient who needs more than tranquilizing effects. It produces positive, sustained falls in blood pressure.

This is what Unitensen Tablets do . . . and with unparalleled safety

These patients experienced sustained control of blood pressure levels over prolonged periods of time.

Summary of Case Histories-Series A*

Age—Sex	BP—mm. Hg. BEFORE	BP—mm. Hg. AFTER
64—M	190/115	140/90
37—M	200/130	130/85
48—M	230/140	140/100
46—M	220/140	160/110
41—M	210/140	155/110
43—M	200/120	160/110
26—M	230/130	180/120
44—M	220/130	175/120
46—M	220/120	162/90

(Write for complete clinical data, including case histories.)

*Personal communication to Irwin, Neisler & Company.

FIRST IN MAINTAINING DECISIVE BLOOD PRESSURE CONTROL

The sole therapeutic agent in Unitensen Tablets is cryptenamine—a potent blood pressure lowering alkaloid fraction isolated by the research staff of Irwin, Neisler & Company. In the majority of cases (see chart at left), cryptenamine will lower blood pressure decisively, and will control blood pressure at the lower levels for prolonged periods of time.

FIRST IN SAFETY

Unitensen Tablets exert a central action on the blood pressure lowering mechanism. Circulatory equilibrium is not disrupted. Improved circulation and improved work of the heart are often attained, *along with the decisive fall in blood pressure.*

Unitensen Tablets have no sympatholytic or parasympatholytic action. Ganglionic blocking does not occur. Unitensen Tablets *do not* cause postural hypotension and collapse, an ever-present risk with other potent blood pressure lowering drugs. Renal function is *not* impaired.

EN®

TANNATE TABLETS

Bottles of 50, 100, 500 and 1000.

FIRST WITH DUAL ASSAY

Unitensen is biologically standardized twice, first for hypotensive response and, second, for side effects (emesis) in the dog so that a safe therapeutic range between the two is assured. In extensive clinical trials only a few isolated cases exhibited occasional vomiting.

Unitensen Tablets do not cause the serious side effects common to widely used synthetic hypotensives. Unitensen Tablets can be given over long periods of time with entire dependability. Cumulative effects have not been noted.

FIRST IN SIMPLE DOSAGE

Start with 2 tablets daily, given immediately after breakfast and at bedtime. If more tablets are needed, include an afternoon dose at 1 or 2 p.m.

FIRST IN ECONOMY

Because of lower dosage, Unitensen Tablets save your patients ⅓ to ½ over the cost of other potent blood pressure lowering agents.

Each Unitensen Tablet contains: Cryptenamine*.....2 mg.†
(as the tannate salt)

*Ester alkaloids of Veratrum viride obtained by an exclusive Irwin-Neisler nonaqueous extraction process.
†Equivalent to 260 Carotid Sinus Reflex Units.

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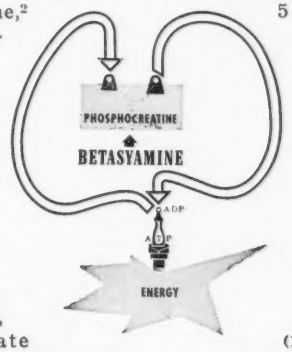
When energy levels are low,

BETASYAMINE recharges the physiologic battery

BETASYAMINE marks a significant advance in Hi-Energy Compound Replacement Therapy for the supportive management of such debilitating conditions as **Anxiety Tension Fatigue Syndromes, Poliomyelitis, Multiple Sclerosis, Cardiovascular Disease, Muscular Dystrophy** and other **low energy states.** As a balanced combination of immediate precursors of creatine,[1] Betasyamine accelerates formation and utilization of phosphocreatine,[2] storehouse of high physiologic energy.[3] Because phosphocreatine levels have been found to be low in many debilitating diseases,[4] replacement therapy with Betasyamine has been demonstrated clinically effective, both by objective and subjective improvement in a significant number of cases. In such patients, the ingestion of adequate amounts of Betasyamine for a minimum of three weeks has usually been followed by **freedom from fatigue, a marked sense of well-being, greater energy output, improved articulation and ambulation, relief from anginal pain and dyspnea, more rapid progress during physiotherapy and during psychotherapy.**[5,6,7] Betasyamine is nontoxic and produces no untoward or artificially stimulating effects. In properly selected patients with low physiologic energy, Betasyamine response varies within individual limits, usually in proportion to dosage and length of administration. For greatest therapeutic benefit, Betasyamine should be accompanied by routine manipulation therapy or ambulatory activity. (Cardiac patients should be cautioned not to exceed functional capacity. Betasyamine produces no appreciable results in healthy persons.) Betasyamine has no contraindication in recommended dosage: for children 6-12, 1 to 2 tablespoonfuls Emulsion (or 5 to 10 Tablets); for patients over 12, up to 5 tablespoonfuls Emulsion (or up to 25 Tablets) daily, preferably in divided doses after meals, for at least three weeks to obtain demonstrable response.



Supplied: **Betasyamine Emulsion** (Bottles of 16 fluid ounces); **Betasyamine Tablets** (Bottles of 200).

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(1) WEST, E. S. and TODD, W. R.: Textbook of Biochemistry, The Macmillan Company, New York, 1952, pp. 1110, 1119. (2) PETERSON, R. D. et al: Federation Proc. *839*: 254 (March) 1953. (3) BEST, C. H. and TAYLOR, N. B.: The Physiological Basis of Medical Practice, Williams and Wilkins Company, Baltimore, 1950, p. 392. (4) BORSOOK, M. E.; BILLIG, H. K., and GOLSETH, J. G.: Ann. West. Med. & Surg. *6*:423 (July) 1952. (5) ALDES, J. H.: (Abstract) Bull. Biol. Sciences Foundation *1*:4 (April) 1954. (6) DIXON, H. H. et al: West. J. Surg. Obstet. & Gynec. *62*:338 (June) 1954. (7) GRAYBIEL, A. and PATTERSON, C. A.: Ann. West. Med. & Surg. *5*:863 (Oct.) 1951.

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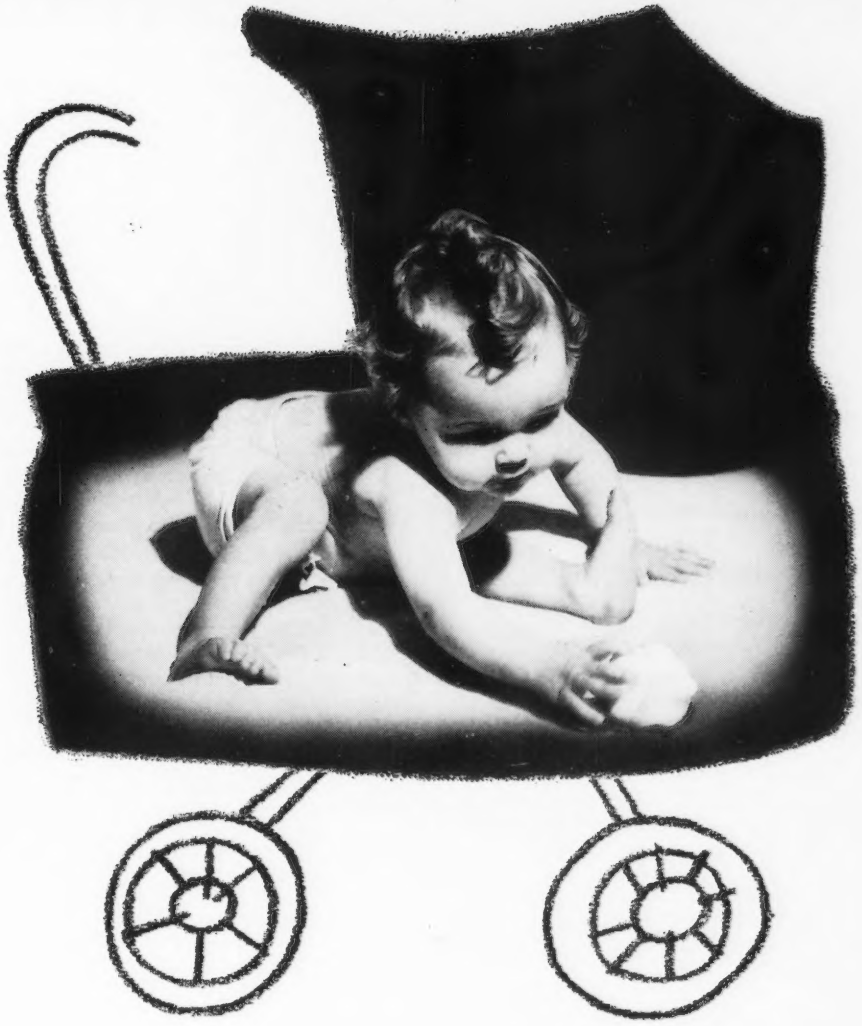
Complete detailed literature available on request. Patent Pending.

FORMULA: Betasyamine Emulsion—each tablespoonful (15 cc.) contains: Betaine (hydrate), 5.0 gm. (equivalent to 4.33 gm. betaine anhydrous); Glycocyamine, 1.0 gm. Bottles of 16 fluid ounces. **Betasyamine Tablets**—each tablet contains Betaine (anhydrous), 0.866 gm.; Glycocyamine, 0.2 gm. Bottles of 200 tablets.



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Each 0.6 cc. contains:

Vitamin A	5,000 U.S.P. units
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Vitamin B_1	1 mg.
Vitamin B_2	0.5 mg.
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D-Panthenol (equivalent to 11.6 mg. d-calcium pantothenate)	10 mg.
Niacinamide	10 mg.
Vitamin C	50 mg.

VI-PENTA® DROPS

Heart "Kick" Measured by Unusual Instrument

Anyone standing still on a well-balanced bathroom scale and watching the pointer quiver is seeing the "kick" of his heart—a phenomenon which is expected to provide important information about heart conditions.

A 20-year study of this phenomenon was reported in a recent issue of the *Journal of the American Medical Association* by Dr. Isaac Starr, of the University of Pennsylvania Department of Therapeutic Research, Philadelphia.

"When one fires a gun, the recoil kicks him in the shoulder, and the bigger the powder charge, the greater the kick and the greater the impact of the bullet," he said.

Roughly, the heart works the same way, and its "kick" as it pushes the blood through the circulatory system is what makes the pointer of the scale wobble. Ballistics experts study the impact of the gun's firing mechanism on the bullet. The heart-testing instrument — called the ballistocardiograph — uses this principle to study the movement of the body produced by the "kick" of the heart. By measuring the strength or weakness of the heartbeat, the instrument can provide valuable clues which could not be learned from previous heart-testing methods, Dr. Starr said.

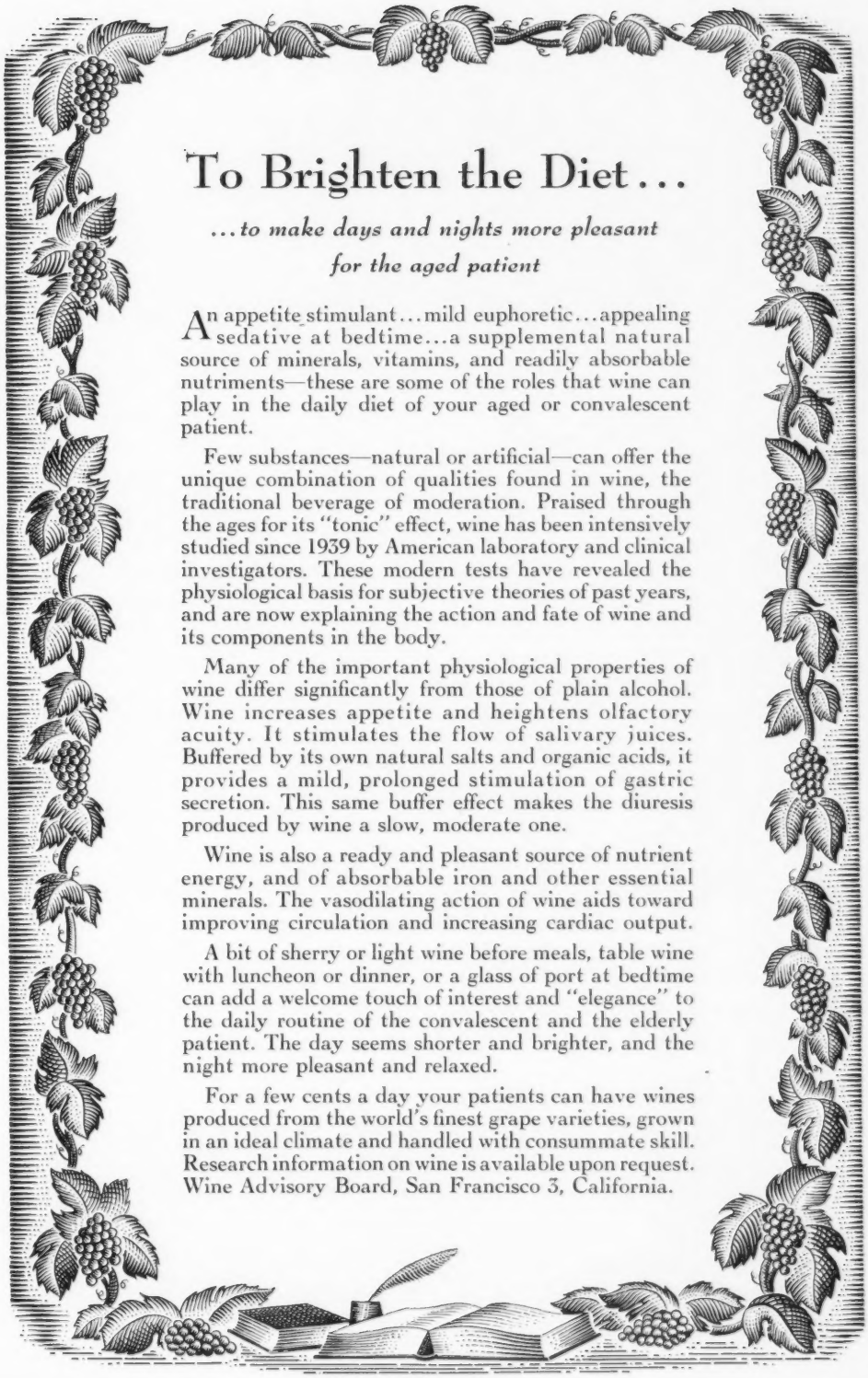
The heart's kick is so sensitive that even holding the breath can produce readable changes on the ballistocardiograph, and studies of the recorded changes can "give greater meaning to the heart's behavior." For instance, the ballistocardiogram shows an "objective demonstration" of such vague disorders as cardiac fatigue, diminished cardiac reserve, weakness of the heart muscles, and heart failure. In a few cases it may provide a more encouraging diagnosis—as for a rheumatic fever patient whose test shows normal function of the heart muscle in spite of injury to the vessels.

Smoking produces such reactions on the record in certain diseases that the instrument may be used to identify persons with a particular type of disorder that readily reacts to tobacco. Dr. Starr said tests indicate that eliminating tobacco might be as beneficial to some other types of heart disease patients as for those with peripheral vascular disease, who usually are advised to quit smoking.

Experimentally, the instrument can test the capacity and limitation of new drugs in their effects on the heart. Responses of the circulatory system in many other diseases may give much badly-needed information about them, Dr. Starr said.

The first instrument used by Dr. Starr in 1936 was a flat table on which the patients could move only lengthwise, a strong spring to oppose this motion, a light beam to measure the heart's "kick" against the spring, and an apparatus to photograph the magnified light beam. This was a long way from

(Continued on Page 96)



To Brighten the Diet...

...to make days and nights more pleasant for the aged patient

An appetite stimulant...mild euphoretic...appealing sedative at bedtime...a supplemental natural source of minerals, vitamins, and readily absorbable nutriments—these are some of the roles that wine can play in the daily diet of your aged or convalescent patient.

Few substances—natural or artificial—can offer the unique combination of qualities found in wine, the traditional beverage of moderation. Praised through the ages for its "tonic" effect, wine has been intensively studied since 1939 by American laboratory and clinical investigators. These modern tests have revealed the physiological basis for subjective theories of past years, and are now explaining the action and fate of wine and its components in the body.

Many of the important physiological properties of wine differ significantly from those of plain alcohol. Wine increases appetite and heightens olfactory acuity. It stimulates the flow of salivary juices. Buffered by its own natural salts and organic acids, it provides a mild, prolonged stimulation of gastric secretion. This same buffer effect makes the diuresis produced by wine a slow, moderate one.

Wine is also a ready and pleasant source of nutrient energy, and of absorbable iron and other essential minerals. The vasodilating action of wine aids toward improving circulation and increasing cardiac output.

A bit of sherry or light wine before meals, table wine with luncheon or dinner, or a glass of port at bedtime can add a welcome touch of interest and "elegance" to the daily routine of the convalescent and the elderly patient. The day seems shorter and brighter, and the night more pleasant and relaxed.

For a few cents a day your patients can have wines produced from the world's finest grape varieties, grown in an ideal climate and handled with consummate skill. Research information on wine is available upon request. Wine Advisory Board, San Francisco 3, California.

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New and Nonofficial Remedies: A.M.A. Council on Pharmacy and Chemistry, J. B. Lippincott, p. 243, 1953.

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Med. Times *81*:266 (Apr.) 1953.

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J.A.M.A. *147*:1311 (Dec.) 1951.

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Delaware State M. J. *22*:283 (Oct.) 1950.

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Complete Medication for the Hypertensive

Each Semhyten Capsule contains:		Phenobarbital	¼ gr. (15 mg.)
Mannitol Hexanitrate	½ gr. (30 mg.)	Rutin	10 mg.
Theophylline	1½ gr. (0.1 Gm.)	Ascorbic Acid	15 mg.

Supplied: In bottles of 100, 500 and 1000 pink-top capsules.

The S. E. MASSENGILL Company • Bristol, Tennessee

Heart "Kick" Measured by Unusual Instrument

(Continued from Page 92)

the original instrument: a bed hung from the ceiling in 1877 by the physician who first noticed the quiver on his scales. Some models now use electric recording devices. The resulting record is a series of waves and peaks like those produced by the lie detector.

An expert eye is needed to read these waves, since even movements in the building may affect them. "A trolley passing on the street below puts a fine vibration into my records, although my laboratory is on the eighth floor," Dr. Starr said. He has tested hundreds of patients since 1936 and followed many of their cases for more than 15 years. He also has used the ballistocardiograph to measure experimental changes produced on normal persons, in order to understand the progress of common abnormalities.

He has found that healthy young adults always show normal records. Age and heart disease produce abnormal wave lines, even in some cases where the patient is apparently healthy; while some patients with diagnosed heart disease show normal records.

"When the heart disease is believed to be severe by ordinary clinical criteria, the ballistocardiogram is usually abnormal," he said. "The exceptions, of course, are of the greatest interest, for it is beginning to appear that the clinicians' impression of the strength of the heart, based on the indirect methods in the past, though probably right in the majority of cases, was often conspicuously wrong."

The instrument is designed to make "readily available" information about this basic question of heart strength. It also may test what situations are good or bad for a patient whose heart is suspected of being abnormal, and indicate which treatment has the best effect. The family physician using the instrument, with his close knowledge of the patient and opportunity to study him carefully, "will find himself in an unusually favorable position to provide us with decisive information on many matters of great importance to the patient," Dr. Starr said.

To Prevent Re-Infection with Trichomonads

The role of the male as a source of infection and re-infection in Trichomonas vaginalis has been reported by numerous investigators.[1-5]

A recent study of 735 patients,[1] reported in *The Journal of the American Medical Association*, "to ascertain the incidence and clinical manifestations of Trichomonas vaginalis in man" verified conclusively the presence of infecting organisms in the male prepuce, urethra, or prostate, and their subsequent postcoital reappearance in the vaginal tract.

The symptomatology noted in the male varies widely and apparently causes no serious residual lesions. According to Lancely[1] in his investigation, the infection can even exist in an asymptomatic state. Meigs[3] reports that the infection in the male is usually self-curative, and within a month the trichomonads "usually disappear."

This observed absence of symptomatology is all the more remarkable when contrasted with the harassing and tormenting manifestations almost invariably reported by infected females.[1-5]

Crossen,[2] in his instructive study and investigation of the persistent and therapy-resistant cases of trichomonal vaginitis, reports numerous avenues of re-infection, listing among others—douche nozzles, fingers, and the sexual partner. He emphasizes the importance of checking the husband as a possible focus of re-infection. Reich and Nechtow[5] similarly advocate such a procedure, stating, "The male, too, may be a source of re-infection. The prostate should be checked as a possible source of trichomonads." Wharton[4] notes "... the infection returns after coitus..." and again, "Occasionally the husband is the reinfecting focus." Lancely,[1] in his extensive study, observes that infection and re-infection by coitus "is not uncommon."[1]

Increasingly, data and studies[1-5] point up the need for prophylactic measures in coitus, as an effective adjunct to routine trichomonal therapy of the female. The importance and rationale for the use of a condom as a preventative of re-infection should be explained carefully. At the same time, both partners can be oriented as to the necessity for repeated laboratory examinations to establish the absence of trichomonal infestation.

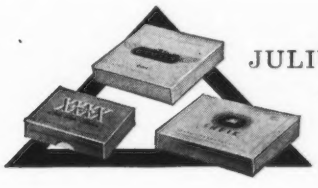
Because of the self-limiting, transient nature of the infection in the male,[1,3] a thirty-day regimen with the husband employing a condom is a rational adjunct to direct therapy.

Occasionally, patients will manifest a reluctance to use the condom because of inconvenience, or inhibition and dulling of sensation. These objections are readily overcome following the recommendation and initial trial of pre-moistened, convenient FOUREX® skins. As these are prepared from the cecum of sheep, they do not exert any retarding effect on sensory nerve endings. In those cases where cost is a paramount factor, the use of RAMSES,® a transparent, very thin rubber condom or SHEIK,® a popular-priced brand, will prove eminently satisfactory.

Physicians may now obtain a complimentary package, which will enable them to confirm the prophylactic value of FOUREX pre-moistened skins and RAMSES and SHEIK rubber condoms as therapeutic adjuncts in trichomonal re-infection. In order to limit the distribution to physicians, requests should be made on your prescription blank and mailed to Dept. C1, Julius Schmid, Inc., 423 W. 55th St., New York 19, N. Y.

references:

1. Lancely, F.: Brit. J. Ven. Dis. 29:213-217, Dec., 1953; abstracted, J.A.M.A. 154:1467, Apr. 24, 1954. 2. Crossen, R. J.: Diseases of Women, ed. 10, St. Louis, C. V. Mosby Company, 1953, p. 294. 3. Meigs, J. V., and Sturgis, S. H.: Progress in Gynecology, vol. 2, New York, Grune and Stratton, Inc., 1950, p. 433. 4. Wharton, L. R.: Gynecology, Including Female Urology, ed. 2, Philadelphia, W. B. Saunders Company, 1947, pp. 446, 448. 5. Reich, W. J., and Nechtow, M. J.: Practical Gynecology, Philadelphia, W. B. Lippincott Company, 1950, pp. 263, 267.



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- convalescents
- growing children
- adolescents
- persons undergoing mild illness or stress

Each Panalins capsule supplies:

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Riboflavin	2 mg.
Niacinamide	20 mg.
Ascorbic acid	50 mg.
Calcium pantothenate	5 mg.
Pyridoxine	0.5 mg.
Folic acid	0.25 mg.
Vitamin B_{12}	2 mcg.
Vitamin A	5000 units
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for vitamin therapy in stress situations

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1 or 2 Panalins-T capsules daily for:

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- the chronically ill
- surgical patients
- burned or injured patients
- vitamin-depleted patients
- persons under any severe stress

Each Panalins-T capsule supplies:

Thiamine	10 mg.
Riboflavin	10 mg.
Niacinamide	100 mg.
Calcium pantothenate	20 mg.
Pyridoxine	2 mg.
Folic acid	1.5 mg.
Ascorbic acid	300 mg.
Vitamin B_{12}	4 mcg.

Bottles of 30 and 100.

Therapeutic Nutrition, Publication 234, National Research Council

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